

Chapter 2. Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

As part of the scoping and environmental analysis conducted for the project, the following environmental issues were considered but no adverse impacts were identified. Consequently, there is no further discussion regarding these issues in this document.

Agriculture and Forestry

There are no farmlands or Timberland Production Zones (TPZ) within the project limits. The project would not affect agricultural or farmland resources.

Air quality:

On July 25, 2012, the Sacramento Area Council of Governments (SACOG) Regional Planning Partnership determined that the project was exempt from regional and project level air quality conformity analysis under the Safety Improvements category. Permanent adverse air quality operational impacts are not anticipated; no operational air quality studies are necessary. Construction emissions are discussed in Chapter 2.

Community:

Caltrans prepared a Community Impact Assessment in June 2013, and determined the project will not affect community character and cohesion. No displacements and/or relocations are associated with this project. No permanent socioeconomic impacts are expected to any population within the study area due to implementation of the proposed project. The study also concluded that the project would not affect population or housing.

Cultural resources:

The cultural resource studies completed for this project include an Archaeological Survey Report (ASR) and the Historic Properties Survey Report (HPSR). A literature and records search was conducted, along with Native American tribal correspondence. No archaeological or historic properties are present within the project Area of Potential Effects (APE). There is a finding of "No Effect" to cultural resources.

If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to CA Public Resources Code (PRC) Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC), which will then notify the Most Likely Descendent (MLD). At that time, the person who discovered the remains will contact Erick Wulf, Associate Environmental Planner, Archaeology, Caltrans District 3 Marysville, so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

Hydrology and Floodplain:

Caltrans conducted a floodplain analysis in March 2007, which concluded that no portion of the proposed project would be within a FEMA designated 100-year floodplain. The project will have no impacts to a designated floodplain and the risk to the surrounding area is low.

Growth:

The proposed project is not expected to alter development patterns or the pace of development in the study area; therefore, no growth-related indirect impacts to resources are expected to result from the implementation of the proposed project. Development is already planned and in progress, and is likely to continue whether or not the proposed project is constructed. The proposed project will not induce community growth because it would not remove obstacles to community growth in the area.

Land Use and Planning:

The project is consistent with local plans and policies, including the Placer County General Plan (updated in May 2013) and the Placer County 2035 Regional Transportation Plan (adopted by Placer County Transportation Planning Agency in September 2010). The project would not alter land use within the project limits.

Public Services:

Caltrans prepared a Community Impact Assessment in June 2013. During roadway construction, emergency vehicles may need to stop temporarily or slow down in order to ensure that they can safely pass through the project area. All emergency public services, such as medical services, law enforcement agencies, fire departments, and local ambulance services will be notified prior to construction. A Transportation Management Plan (TMP) will be implemented for this project. Impacts to public services will be minor and temporary.

Paleontology:

The project is located outside areas of paleontological sensitivity. There are no known paleontological resources within the project limits.

Pedestrian and Bicycle Facilities:

Because pedestrians and bicyclists are prohibited from using this section of I-80, no pedestrian or bicycle facilities are located within the project limits.

Recreation:

No recreational facilities are located within the project limits.

2.1. Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages.

- | | |
|--------------------------|------------------------------------|
| <input type="checkbox"/> | Aesthetics |
| <input type="checkbox"/> | Agricultural Resources |
| <input type="checkbox"/> | Air Quality |
| <input type="checkbox"/> | Biological Resources |
| <input type="checkbox"/> | Cultural Resources |
| <input type="checkbox"/> | Geology/Soils |
| <input type="checkbox"/> | Hazards and Hazardous Materials |
| <input type="checkbox"/> | Hydrology/Water Quality |
| <input type="checkbox"/> | Land Use/Planning |
| <input type="checkbox"/> | Mineral Resources |
| <input type="checkbox"/> | Noise |
| <input type="checkbox"/> | Population/Housing |
| <input type="checkbox"/> | Public Services |
| <input type="checkbox"/> | Recreation |
| <input type="checkbox"/> | Transportation/Traffic |
| <input type="checkbox"/> | Utilities/Service Systems |
| <input type="checkbox"/> | Mandatory Findings of Significance |

2.2. Impacts Checklist

The impacts checklist starting on the next page identifies physical, biological, social, and economic factors that might be affected by the proposed project. The California Environmental Quality Act impact levels include “potentially significant impact,” “less than significant impact with mitigation,” “less than significant impact,” and “no impact.” The checklist is followed by a focused discussion of biological issues relating to this project.

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included either following the applicable section of the checklist or is within the body of the environmental document itself.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS: Would the project:				
a) Have a substantial adverse effect on a scenic vista	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
II. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

IV. BIOLOGICAL RESOURCES: Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES: Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

VI. GEOLOGY AND SOILS: Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

VII. GREENHOUSE GAS EMISSIONS: Would the project:	
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	An assessment of the greenhouse gas emissions and climate change is included in the body of environmental document. While Caltrans has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the body of the environmental document.
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
IX. HYDROLOGY AND WATER QUALITY: Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
X. LAND USE AND PLANNING: Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XI. MINERAL RESOURCES: Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XII. NOISE: Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XIII. POPULATION AND HOUSING: Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XIV. PUBLIC SERVICES:				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XV. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XVI. TRANSPORTATION/TRAFFIC: Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XVII. UTILITIES AND SERVICE SYSTEMS: Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.2.1. AESTHETICS/VISUAL/AESTHETICS

2.2.1.1. REGULATORY SETTING

The California Environmental Quality Act (CEQA) establishes that it is the policy of the State to take all action necessary to provide the people of the State “with...enjoyment of *aesthetic*, natural, scenic and historic environmental qualities” (CA Public Resources Code [PRC] Section 21001[b]).

2.2.1.2. AFFECTED ENVIRONMENT

Caltrans Landscape Architecture staff completed a Visual Impact Assessment (VIA) in September 2012.

The visual setting of the proposed project area is mountainous, located in the Sierra Nevada range. The highway facility within the project limits has a limited viewshed due to the vegetation and terrain. The area is heavily forested on both sides of the freeway and has steep cut slopes, which presents a sense of enclosure. The east side is much steeper than the west.

The vegetation within the project limits consist of Pacific ponderosa pine, Douglas fir, incense cedar and white fir, with an understory of white-leaved manzanita and deerbrush. In some areas the soils support black oak or canyon live oak in the over-story. In the northern part of the project, the soils are thin, supporting chaparral composed of stands of white-leaved manzanita. In addition, there are soil extrusions derived from igneous rock. In this area these soils support open Ponderosa pine forest with less conifer diversity, and a spaced shrub layer dominated by white-leaved manzanita, toyon, and deerbrush.

The land use is primarily forest; there is very little development along this stretch of highway. The immediate and surrounding area of the project site is a pleasant visual experience but does not stand out in terms of diversity, vividness, and intactness (the extent in which the visual landscape is free from encroachment). This section of highway begins to approach the mountainous region of Interstate 80 that is eligible for scenic highway status. It is for this reason this area’s visual quality is considered moderate.

2.2.1.3. ENVIRONMENTAL CONSEQUENCES

Visual impacts are determined by assessing changes to the visual resources and predicting viewer response to those changes.

Caltrans proposes constructing a retaining wall at various locations to support the cut slopes that will be necessary along the edge of the corridor. The wall may be as high as thirty feet. Applying aesthetic features, such as form liner, sculpting or texturizing to the surface and/or adding color to the concrete mix of the structure, will soften the wall’s prominence. During the design phase, Caltrans will determine specific aesthetic features. The intent of these features is to lessen the impact of the wall and make it less visible to the motorist while travelling this section of highway. The type of wall will be determined as the project engineer conducts more studies.

The project’s site location, due to its steep terrain on both sides of the highway, is not highly visible from the surrounding areas. The frontage road along the south side of a portion of the highway has some visibility to the highway; but the trees act as a visual buffer between

the road and the highway. Views of the highway are visible from the Alpine Overcrossing and the Magra Road Overcrossing.

This portion of I-80 is not within a designated State Scenic Highway. The scenic resources along this stretch of highway consist of the heavily forested area and mountainous terrain. The project includes removing trees; however, there are trees immediately behind those that will not be removed. The exact number of trees that will be removed is not known at this time.

Visual resources of the project setting are defined and identified by assessing *visual character* and *visual quality* in the project corridor. *Resource change* is assessed by evaluating the visual character and the visual quality of the visual resources that comprise the project corridor before and after construction of the proposed project.

Consideration is given to two general viewer groups for the evaluation of viewer response, those with views from the road and those with views of the road. Views of the road are typically made by people who live within the area, such as people living in residential developments near the highway corridor. This particular area has very little development due to the steep terrain. This project will not impact viewers of the road since there are very few.

Viewers from the road consist of a group of individuals who travel along the highway corridor for varying reasons. Distant views of the surrounding areas by the traveling motorist along this stretch of I-80 is restricted for the most part due to the thick growth of trees and the steep mountainous terrain that lines the edge of the highway facility. Viewers from the road will notice a change in the highway corridor due to the cut and fill that will be necessary for adding the auxiliary lane. The most apparent change to the highway will be the retaining wall. The initial change to the road will have a moderate impact, especially to the motorist who travels this route on a daily basis. For the traveler who seldom drives this route, it will be a low impact. It is anticipated that the average response of all viewer groups (of the road and from the road) will be low.

The visual character of the proposed project will, for the most part, be compatible with the existing visual character of the corridor; however, the proposed retaining wall will not be compatible due to its height and length. When it is clearly defined as to what type of wall will be constructed, it will be necessary for the project engineer, with support from the landscape architect, to design features into the wall that will minimize the visual impacts of this structure. Ideas and concepts will need to be explored to provide aesthetic features that will help to blend the structure with the surrounding mountainous terrain. One approach would be to use form-liner that replicates the look of stacked stone or to sculpt the surface to look like a natural cut granite slope.

The overall visual quality of the existing corridor will not be altered by the proposed project. The truck-climbing lane will not require major alterations to the landscape. The retaining wall will have the biggest impact, but implementation of aesthetic features will minimize this impact (see below).

Overall, the project will have a low to moderate impact on the visual quality of the area.

In sum, this project will not:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway; and,
- Substantially degrade the existing visual character or quality of the site and its surroundings.

The proposed retaining wall may create a new source of light or glare which could adversely affect day or nighttime views in the area. The wall will be designed to eliminate the possibility of glare.

The removal of trees along the south side of the highway will also be noticeable after the clearing and grubbing phase. This issue will be addressed during the design phase of the project through the proper use of erosion control and re-vegetation.

2.2.1.4. AVOIDANCE AND MINIMIZATION MEASURES

This section describes additional avoidance and/or minimization measures to address specific visual impacts. These will be designed and implemented with concurrence of the Caltrans District Landscape Architect.

The following measures will be incorporated to avoid or minimize visual impacts of the project:

1. If possible, the new constructed slope should be rounded to prevent an angular unnatural look. Rounded slopes have a more organic look and blend more naturally with the surrounding environment.
2. At the end of construction, all areas used for staging, access, or other construction activities shall apply erosion control methods and be contour graded in such a way as to visually integrate them into the surrounding topography.
3. Erosion control methods used for the re-vegetation work shall consist of a seed mix that is indigenous to the area.
4. All disturbed areas during each construction season shall utilize best management practices (BMPs), which will include temporary erosion control consisting of applying native seed mix at the end of each construction season.
5. Areas with removed trees and shrubs, and areas of soil disturbance due to construction activities will have permanent erosion control measures applied and will be re-vegetated where appropriate. All finished slopes and graded areas shall be hydro-seeded with a permanent seed mix composed of native plant species indigenous to the area.
6. The retaining wall requires aesthetic features compatible with the area. These concepts will be explored during the design phase of the project when the type of wall is determined by Caltrans Design.
7. Consideration for all the above items shall be addressed in the Landscape Architectural Assessment Sheet (LAAS) where items such as the retaining wall, areas of ground disturbance, and quantities for landscape planting will be discussed to determine cost and resources necessary for implementing these minimization measures. The LAAS, developed by the Caltrans Landscape Architect, should look at aesthetic attributes that may apply to this project.

2.2.2. BIOLOGICAL ENVIRONMENT

In July 2012, Caltrans prepared a Natural Environment Study for the project. Based on a review of the California Natural Diversity Database (CNDDB), the California Native Plant

Society (CNPS) web site, and the United States Fish and Wildlife (USFWS) web site, 18 special-status plant species have the potential to occur outside of the project limits. Of these, four plant species are protected under the California Endangered Species Act (CESA) and/or the United States (Federal) Endangered Species Act (FESA): Stebbin's morning glory (*Calystegia stebbinsii*), Pine Hill flannelbush (*Fremontodendron decumbens*), Layne's ragwort (*Senecio layneae*), and Scadden Flat checkerbloom (*Sidalcea stipularis*). All four species are restricted to particular substrates (serpentine/gabbro) or habitats (marsh or bog).

Based on a review of the CNDDDB and the USFWS web sites, nine special-status wildlife species have the potential to occur outside the project limits. Of these nine, two wildlife species are listed under FESA and/or CESA: California red-legged frog (*Rana aurora draytonii*) and Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*).

Seasonally timed and protocol-level surveys for special-status plant species were performed in spring and summer 2006, 2007, and 2012. General field assessments for aquatic and terrestrial wildlife species and other sensitive resources were conducted in June, July, and August 2006, and verified in 2012 by Caltrans biologist Erik Schwab.

The results of the focused surveys and habitat assessments are summarized as follows:

- Two special-status plant species, Brandegees's clarkia (CNPS List 1B.2) and Red Hills soaproot (CNPS List 1B.2), were observed during surveys. These plants are outside the project limits.
- One potential special-status plant species was observed that could not be identified. Vegetative individuals that could be Butte County missionbells (CNPS List 3.2) were observed during surveys. None of the individuals was observed producing flowers in 2006, 2007 or 2012 and could not be identified to species. This plant is outside the project limits.
- One California Species of Concern, sharp-shinned hawk, was observed displaying territorial behavior during general field assessments. The hawk was outside the project limits.
- A tadpole was observed that could potentially be foothill yellow-legged frog, a California Species of Concern. This tadpole was not identified to species. The tadpole was outside the project limits.
- No California or Federally listed endangered or threatened plant or wildlife species were observed during the surveys.

Spring 2007 surveys were also conducted for the primary host plants for the bee *Andrena subapasta*. These host plants are sandwort (*Arenaria* spp. or *Minuartia* spp.), goldfields (*Lasthenia* spp.), and Johnny-tuck (*Triphysaria eriantha* ssp. *eriantha*). These food plant taxa were not observed in the project limits.

Based on the results of the surveys and habitat assessments, no protocol-level surveys will be necessary to determine presence or absence of California red-legged frog and foothill yellow-legged frog, as there was no suitable habitat for these species identified within the project limits. Some of the overcrossings outside the project limits support populations of bats such as the Brazilian free-tailed bat (*Tadarida brasiliensis*) and potentially other bat species (*Myotis* sp.). Some species of *Myotis* are listed by the California Department of Fish and Wildlife (CDFW) as species of special concern. Because the bats observed are outside

the project limits, impacts to bats are not anticipated. Overcrossings outside the project limits also support colonies of cliff swallows (*Petrochelidon pyrrhonota*). Nesting cliff swallows are protected by the Migratory Bird Treaty Act. However, impacts to swallows are not anticipated as the cliff swallows are outside the project limits.

Caltrans completed 2012 spring and summer surveys and found that none of the listed plants or animals species are within the project limits. As a result, listed species will not be impacted by the project.

The project will impact wetlands and waters of the U.S., so an US Army Corps of Engineers 404 permit, a Regional Water Quality 401 Certification, and a CDFW 1602 permit will be required for this project.

2.2.2.1. NATURAL COMMUNITIES

Affected Environment

Garcia and Associates (GANDA) biologists performed surveys on June 19–20 and 29–30, August 14–15, and November 29, 2006. Vegetation was mapped as general habitat types, floristic alliances, or associations from the 2003 CDFW *Vegetation Classification and Mapping Program*, which is largely based on the *Manual of California Vegetation* by Sawyer and Keeler-Wolf (1995). Wetland vegetation was mapped in conjunction with a jurisdictional delineation. Upland vegetation was mapped in the field on aerial photos obtained from the National Agriculture Imagery Program at a scale of 1:5,000.

Vegetation mapping resulted in the identification of 10 floristic alliances and associations within the project limits. Six of the 10 categories are upland vegetation: ponderosa pine forest and woodland alliance, Douglas-fir forest alliance, whiteleaf manzanita chaparral alliance, canyon live oak forest and woodland alliance, nonnative grassland habitat, and black oak forests and woodland alliance. The remaining four categories are wetland vegetation mapped during the corresponding jurisdictional delineation: meadows and seeps not dominated by grasses, broad-leafed cattail (*Typha latifolia*) association, mixed willow riparian forests and woodlands alliance, and white alder (*Alnus rhombifolia*) forest and woodland alliance.

The alliances mapped within the project limits were further subdivided into approximately 35 associations. These associations are included in the July 2012 Natural Environment Study available from Caltrans.

With the exception of the nonnative grassland habitat type, which is dominated by nonnative invasive plant species, the majority of the vegetation in the project limits is dominated by California native species. The nine other vegetation categories are generally dominated by native species.

Environmental Consequences

There are three potential staging areas within the project limits. Temporary impacts to vegetation types include ponderosa pine forest and/or woodland (1.15 acres) and non-native grassland (0.175 acres).

The table below shows the vegetation types, by acres, within the project's cut and fill areas:

Vegetation Types Within Cut and Fill Areas, Acres

Vegetation Type	Acres
Black Oak Forest and/or Woodland	0.8732
Broad-leafed Cattail	0.0003
Canyon Live Oak Forest and/or Woodland	0.5046
Douglas Fir Forest	1.5443
Meadows and Seeps not dominated by grasses	0.0423
Non-native Grassland	0.2058
Ponderosa Pine Forest and/or Woodland	12.0464
Whiteleaf Manzanita Chaparral	8.1143

2.2.2.2. WETLANDS AND OTHER WATERS

Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (CWA) (33 United States Code [USC] 1344) is the primary law regulating wetlands and surface waters. One purpose of the CWA is to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army of Engineers (USACE) with oversight by the United States Environmental Protection Agency (U.S. EPA). USACE issues two types of 404 permits: Standard and General permits. There are two types of General permits, Regional permits and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to authorize a variety of minor project activities with no more than minimal effects.

There are two types of Standard wetland permits: Letters of Permission and individual permits. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Standard permits. For Standard permits, the USACE decision to approve is based on compliance with U.S. EPA's Section 404(b)(1) Guidelines (U.S. EPA 40 Code of Federal Regulations [CFR] Part 230), and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines were developed by the U.S. EPA in conjunction with USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences.

At the state level, wetlands and waters are regulated primarily by CDFW, the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCB). In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission or Tahoe Regional Planning Agency) may also be involved. Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFW before beginning construction. If CDFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFW jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFW.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The RWQCB issues water quality certifications for impacts to wetlands and waters in compliance with Section 401 of the CWA. Please see the Water Quality section for additional details.

Affected Environment

Seasonal Wetlands

Seasonal wetlands within the project limits are areas supported by ground and surface water that persists through late spring and early summer and are predominantly occupied by hydrophytic forbs, grasses, and rushes. The soil mapping units that support seasonal wetlands in the project limits are Josephine Loam 15 to 30 percent slopes, Josephine Loam 30 to 50 percent slopes, Mariposa Gravelly Loam 5 to 30 percent slopes, Mariposa-Josephine Complex 30 to 50 percent slopes, Maymen-Rock Outcrop Complex 50 to 75 percent slopes, Sites Loam 15 to 30 percent slopes, and Xerorthents cut and fill areas. Although there are no inclusions mapped as hydric within these soil mapping units, the seasonal wetlands within these soil mapping units have hydric soils based on field observations.

Herbaceous species include American speedwell, barnyard grass, brook foam, common bedstraw, common horsetail, curly dock, dallis grass, field mint, fragile fern, giant chain fern, Himalayan blackberry, hyssop loosestrife, irisleaf rush, lady fern, narrowleaf self-heal, needle spikerush, orchard grass, Pacific rush, peppermint, purslane speedwell, rabbit's foot grass, seep spring monkeyflower, spikerush, sticktight, tall flatsedge, toad rush, velvet grass, vernal pool hairgrass, western marsh cudweed, white hedgenettle, wild teasel, willow herb, and yellow nutgrass. An occasional shrub component of American dogwood, arroyo willow, and California rose is present in this community.

Culverts

Culverts are artificial conduits that convey water for short distances beneath berms or roads. Culverts are located within the project limits.

Intermittent Channel

Intermittent channels within the project limits are natural channels that carry water seasonally.

Environmental Consequences

Three seasonal wetlands are located within the project limits; SW-005, SW-006, and SW-007 (Figure 3). These seasonal wetlands, totaling 0.0412 acre, meet the definition of waters of the U.S. as per 33 CFR 328.3(a)(7). Seasonal wetland features are summarized below, including area, potential waters of the U.S. determination, rationale supporting waters of the U.S. determination, and wetland function and values.

Wetland ID	Area (acres)	Wetland Functions and Values
SW-005	0.0199	Ground water recharge, water storage, water filtration, soil formation, sediment trapping, flood peak reduction and habitat for plants and animals.
SW-006	0.0117	Ground water recharge, water storage, water filtration, soil formation, sediment trapping, flood peak reduction and habitat for plants and animals.
SW-007	0.0096	Ground water recharge, water storage, water filtration, soil formation, sediment trapping, flood peak reduction and habitat for plants and animals.

Five culverts are within the project limits that convey non-wetland waters that meet the definition of waters of the U.S. under 33 CFR 328.3(a)(5), for a total of 0.0272 acre of culverts that are potentially under USACE jurisdiction (Figure 3). The table below indicates the area, length and width of each culvert within the project limits, makes a determination of whether or not each feature is a potential water of the U.S., and provides a rationale for this determination.

Culvert ID	Area (acres)	Length (ft)	Width (ft)	Wetland Functions and Values
CU-011	0.0154	546	3	Velocity reduction, sediment trapping, water quality improvement, water storage, flood peak reduction and habitat for plants and animals.
CU-014	0.0006	184	2	Velocity reduction, sediment trapping, water quality improvement, water storage, flood peak reduction and habitat for plants and animals.
CU-018	0.0037	230	3	Velocity reduction, sediment trapping, water quality improvement, flood peak reduction and habitat for plants and animals.
CU-022	0.0041	321	3	Velocity reduction, sediment trapping, water quality improvement, water storage, flood peak reduction and habitat for plants and animals.
CU-041	0.0034	208	3	Velocity reduction, sediment trapping, water quality improvement, flood peak reduction and habitat for plants and animals.

Eleven intermittent channels in the project limits meet the definition of waters of the U.S. under 33 CFR 328.3(a)(5) for a combined area of 0.113 acres (Figure 3). The table below indicates the area, length and width of each intermittent channel within the project limits, makes a determination of whether or not each feature is a potential water of the U.S., provides a rationale for this determination.

Intermittent Channel ID	Area (acres)	Length (ft)	Width (ft)	Wetland Functions and Values
IC-033	0.0202	309	6	Sediment trapping, water quality improvement, water storage, flood peak reduction and habitat for plants and animals.
IC-037	0.0032	477	6	Sediment trapping, water quality improvement, water storage, flood peak reduction and habitat for plants and animals.
IC-042	0.0105	229	2	Sediment trapping, water quality improvement, water storage, flood peak reduction and habitat for plants and animals.
IC-051	0.0107	93	5	Sediment trapping, water quality improvement, water storage, flood peak reduction and habitat for plants and animals.
IC-054	0.0102	230	2	Sediment trapping, water quality improvement, water storage, flood peak reduction and habitat for plants and animals.
IC-055	0.0024	365	5	Sediment trapping, water quality improvement, water storage, flood peak reduction and habitat for plants and animals.
IC-066	0.0081	169	8	Sediment trapping, water quality improvement, water storage, flood peak reduction and habitat for plants and animals.
IC-077	0.0086	130	3	Sediment trapping, water quality improvement, water storage, flood peak reduction and habitat for plants and animals.
IC-078	0.0319	344	3	Sediment trapping, water quality improvement, water storage, flood peak reduction and habitat for plants and animals.
IC-084	0.0041	639	3	Sediment trapping, water quality improvement, water storage, flood peak reduction and habitat for plants and animals.
IC-110	0.0031	138	2	Sediment trapping, water quality improvement, water storage, flood peak reduction and habitat for plants and animals.

The project is anticipated to impact a total of 0.1814 acres of wetlands and other waters. Caltrans will mitigate for these impacts through in-lieu fees paid to a USACE approved wetland mitigation bank. These impacts are not considered significant after mitigation.

Avoidance, Minimization, and/or Mitigation Measures

Caltrans will mitigate for the 0.1814 acres of wetlands and other waters through in-lieu fees paid to a USACE approved wetland mitigation bank.

Direct and indirect impacts to sensitive biological resources, including common vegetation and habitat for sensitive species, throughout the project area will be avoided by designating these features outside of the construction impact area as “environmentally sensitive areas” (ESAs) on project plans and in project specifications. ESA information will be shown on contract plans and discussed in the Special Provisions. ESA provisions may include, but are not limited to, the use of temporary orange fencing to delineate the proposed limit of work in areas adjacent to sensitive resources, or to delineate and exclude sensitive resources from potential construction impacts. Contractor encroachment into ESAs will be restricted (including the staging/operation of heavy equipment or casting of excavation materials). ESA provisions shall be implemented as a first order of work and remain in place until all construction activities are complete. ESA fencing shall exclude all upland areas of the functioning existing embankment slopes.

Best Management Practices (BMPs)

BMPs will be employed to prevent any construction material or debris from entering surface waters or their channels. BMPs will be implemented and in place prior to, during and after construction in order to ensure that no silt, sediment, or other polluting materials enter surface waters.

Caltrans' Standard Specifications require the contractor to submit a Water Pollution Control Plan. This Plan must meet the standards and objectives to minimize water pollution impacts set forth in Section 7-1.01G of Caltrans' Standard Specifications. The Water Pollution Control Plan must also be in compliance with the goals and restrictions identified in the Central Valley Water Quality Control Board's Basin Plan. Any additional measures included in project permits will be complied with. These standards/objectives, at times referred to as BMPs, include but are not limited to:

- 1) Where working areas encroach on live or dry streams, lakes or wetlands, RWQCB-approved physical barriers adequate to prevent the flow of discharge of sediment into those systems shall be constructed and maintained between working areas and streams, lakes and wetlands. During construction of the barriers, discharge of sediment into streams shall be held to a minimum. Discharge will be contained through the use of RWQCB-approved measures that will keep sediment from entering protected waters. Oily or greasy substances originating from the Contractor's operations shall not be allowed to enter or be placed where they will later enter a live stream, pond or wetland.
- 2) Asphalt concrete shall not be allowed to enter a live or dry stream, pond, or wetland.
- 3) Special attention shall be given in preventing welding materials, paint residue or other construction materials from entering any wetland or other waters of the U.S.

2.2.2.3. PLANT SPECIES

Regulatory Setting

US Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) have regulatory responsibility for the protection of special-status plant species. "Special-status" species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are afforded varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species formally listed or proposed for listing as endangered or threatened under FESA and/or CESA.

This section of the document discusses all the other special-status plant species, including CDFW species of special concern, USFWS candidate species, and California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at United States Code 16 (USC), Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402. The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, et seq. Caltrans projects are also subject to the Native Plant Protection Act, found at California Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act (CEQA), CA Public Resources Code, Sections 2100-21177.

Affected Environment

Special-status plant surveys were conducted in accordance with CNPS, CDFW, and USFWS guidelines. For this study, special-status plant species are defined as those listed as rare, threatened, or endangered in the CESA or FESA, or included on CNPS List 1B or 2. CNPS List 1B species are rare or endangered in California and elsewhere; List 2 species are rare or endangered in California and more common elsewhere. (Butte County missionbells (CNPS List 3.2) was also included on the special-status list because suitable habitat for this species exists within the project limits. The CNPS List 3.2 designation indicates that more information is needed about this species and the species is believed to be “fairly endangered” in California. These plant surveys were performed at proper times during the blooming season to determine the identity of potential special-status plants.

GANDA botanists performed protocol surveys in the project limits on June 19–20 and 29–30, 2006, August 14–15, 2006, and May 15–18, 2007. Seasonally timed surveys took place on April 4 and 18, and June 7 and 22, 2007. Surveys conducted in April 2007 also included primary host plants for the bee *Andrena subapasta*. These plants are taxa of sandwort (*Arenaria* spp. or *Minuartia* spp.), goldfields (*Lasthenia* spp.), and Johnny-tuck (*Triphysaria eriantha* ssp. *eriantha*).

Fourteen special-status plant species with potential to occur in the project limits are listed by CNPS but not afforded protection under CESA or FESA. Two special-status species were observed during the surveys (see below): Red Hills soaproot (CNPS List 1B.2) and Brandegee’s clarkia (CNPS List 1B.2). In addition, individual basal leaves of *Fritillaria* were observed that could not be identified to the level necessary to determine identity as a special-status species; these leaves could be Butte County missionbells (CNPS List 3.2) or a more common species like scarlet fritillary (*Fritillaria recurva*). The other 11 were not observed within the project limits and are not anticipated to be affected: Jepson’s onion (*Allium jepsonii*) - CNPS List 1B.2; Nissenan manzanita (*Arctostaphylos nissenana*) - CNPS List 1B.2; Sheldon’s sedge (*Carex sheldonii*) - CNPS List 2.2; Parry’s horkelia (*Horkelia parryi*) - CNPS List 1B.2; Red-anthered rush (*Juncus marginatus* var. *marginatus*) - CNPS List 2.2; Cantelow’s lewisia (*Lewisia cantelovii*) - CNPS List 1B.2; Follett’s monardella (*Monardella folletti*) - CNPS List 1B.2; Bog club-moss (*Lycopodiella inundata*) - CNPS List 2.2; Elongate copper-moss (*Mielichhoferia mielichhoferiana* var. *elongata*) - CNPS List 2.2; Brownish beaked-rush (*Rhynchospora capitellata*) - CNPS List 2.2; and Oval-leaved viburnum (*Viburnum ellipticum*) - CNPS List 2.3.

Two special-status plant species, Nissenan manzanita (CNPS List 1B.2) and Butte County missionbells (CNPS List 3.2), bloom earlier in the year than the earliest 2006 survey dates. Nissenan manzanita blooms between February and March (CNPS 2012), but this species is a perennial shrub that can be identified from a combination of habitat and vegetative characteristics. This species inhabits rocky outcrops in closed-cone conifer forest and chaparral. Within those habitats, Nissenan manzanita is a relatively small shrub (2 to 5 feet) with short hairy twigs, rough grey bark, and glaucous leaves. No other manzanita taxon known from the region² has the same suite of characters (Jepson Herbarium 2006a;

² A database search of herbaria specimens from Yuba, Sierra, El Dorado, Placer, and Nevada counties found 10 other species of manzanita present in the region: *Arctostaphylos manzanita*, *A. mewukka* ssp. *mewukka*, *A. nevadensis*, *A. parrayana*, *A. patula*, *A. pumila*, *A. pungens*, *A. uva-ursi*, *A. viscida* ssp. *viscida*, and *A. viscida* ssp. *mariposa*. None of these species has the same suite of vegetative characters as Nissenan manzanita.

Hickman 1993). Therefore, the first year of the surveys was adequate to detect all CNPS List 1B and 2 species.

Butte County missionbells bloom between March and May (CNPS 2012). At the time of the first 2006 survey, this species would have been in fruit. Rhizomatous leaves and fruits would still be visible, and individuals would be identifiable to genus (*Fritillaria*) but not to species.³ Therefore, *Fritillaria* plants that were potentially Butte County missionbells were mapped during June 2006 surveys. The 2006 surveys for this species should be considered reconnaissance level. Locations with potential plants were resurveyed in April and May 2007 and in 2012.

The project limits was traversed on foot. The plant surveys were floristic in nature and plant species were identified to the taxonomic level necessary to determine status. However, not all plant species present in the survey area would have been in a reproductive condition necessary for taxonomic determination.

Special-status plants were mapped with a Trimble GeoExplorer global positioning system unit using ArcPad 7.0 software. Plants were also mapped if they had potential to be special-status plants but were not identifiable to a taxonomic level to determine status (e.g., vegetative plants without flowers). The locations of potential special-status plants identified in 2006 were revisited in 2007 at appropriate blooming times to determine taxonomic status.

Environmental Consequences

Biological studies identified 18 special-status plant species that are known to occur within the 12-quad review area around the project limits.

Listed Plant Species

None of the 18 special-status plant species with the potential to occur in the project limits occur were observed. Four of the 18 species are restricted to particular substrates (serpentine/gabbro) or habitats (marsh or bog). None of the following Federally or California-listed special-status plants was observed during the 2006, 2007 2012 surveys: Stebbin's morning glory (*Calystegia stebbinsii*) - Federally endangered, California endangered, CNPS List 1B.1; Pine Hill flannelbush (*Fremontodendron decumbens*) - Federally endangered, California rare, CNPS List 1B.2; Layne's ragwort (*Senecio layneae*) - Federally threatened, California rare, CNPS List 1B.2; Scadden Flat checkerbloom (*Sidalcea stipularis*) - No Federal status, California endangered, CNPS List 1B.1.

Other Special-Status Plants

Red Hills Soaproot (*Chlorogalum grandiflorum*); CNPS List 1B.2

Red Hills soaproot is a CNPS List 1B.2 species. It has no Federal or California status, but if present would be protected under CEQA. This perennial bulbiferous herb is known from Amador, El Dorado, Placer, and Tuolumne counties where it is typically found on serpentine or gabbroic soils in chaparral, cismontane woodland, and lower montane coniferous forest. The elevation range for this species is 800 to 3,840 feet. This species blooms between May and June (CNPS 2012). One population exists approximately five miles southeast of the

³ A database search of herbaria specimens from Yuba, Sierra, El Dorado, Placer, and Nevada counties found five other species of *Fritillaria* present in the region: *F. agrestis*, *F. atropurpurea*, *F. micrantha*, *F. pudica*, and *F. recurva*. In a fruiting state, Butte County missionbells (*F. eastwoodiae*) can be identified to genus but cannot be distinguished from these other congeneric species.

project limits. Other known occurrences are more than 12 miles to the southeast. Red Hills soaproot is threatened by development, mining, and vehicles.

Two occurrences of vegetative soap-plant were observed near the project limits during the 2006 surveys. These rosettes were revisited in 2007, at which time plants were blooming. These plants keyed to Red Hills soaproot in the Jepson Manual (Hickman, J. C., editor. 1993. *The Jepson Manual: Higher Plants of California*. Berkeley, CA: University of California Press), and identity was confirmed by a soaproot expert (Jernstedt, Judy. Professor at the University of California, Davis and author of the *Chlorogalum* treatment in *The Jepson Manual*. Emails with Samantha Hillaire regarding the identity of soaproot plants observed in the ESL. June 21, 2007).

One occurrence of Red Hills soaproot was observed near the project limits immediately adjacent to eastbound I-80, within a small culvert and abandoned roadbed. The habitat in this area is live oak forest. Only four plants were flowering at this location in 2007. The soil was disturbed and did not appear to be openly gabbroic or serpentinitic; soils at this location are mapped as cut-and-fill and Mariposa-Josephine Complex. Josephine soils are derived from igneous rock extrusions, which may have provided a slight serpentine character to the soil. However, the soil along the roadcut and old roadbed may have been imported.

The second occurrence of Red Hills soaproot had 131 plants and was observed on the north side of westbound I-80, adjacent to Boardman Canal near Secret Town Road. The habitat in this area is open ponderosa pine forest. Approximately half of the plants were blooming. Soils at this location are not openly gabbroic (a usually coarse-grained igneous rock composed chiefly of calcic plagioclase and pyroxene) or serpentinitic. The soils are mapped as Mariposa gravelly loam, which is derived from metasedimentary rock. However, soils at this area were likely disturbed to create Boardman Canal, and may have been imported. This plant occurs outside the project limits and will not be impacted by the project.

Brandeggee's clarkia (Clarkia biloba ssp. brandegeae); CNPS List 1B.2

Brandeggee's clarkia is a CNPS List 1B.2 species. This species has no California or Federal status but would be protected under CEQA. This species is known to inhabit chaparral and cismontane woodland in Butte, El Dorado, Nevada, Placer, and Yuba counties, where it is often found on roadcuts. This subspecies is distinguished from other similar taxa by minimal petal lobing. The elevation range for Brandeggee's clarkia is 740 to 3,000 feet. It blooms between May and July. This annual herb occurs from roadcuts in the Colfax vicinity. Twenty-one populations of this species were recorded in the 12-quad background review area, the closest being 0.95 mile from the project limits. Brandeggee's clarkia is threatened by road maintenance and fire suppression.

In 2006, this species was observed in two locations near the project limits, both on the east side of I-80. One occurrence was in a grassy area on an eastbound I-80 roadcut, south of the Long Ravine Railroad trestle, near PM 34.90. The other occurrence was approximately 100 feet south of the other population, along the roadcut of an unpaved frontage road. Together, these two occurrences had about 55 plants (35 in the northernmost patch, 20 in the southernmost patch) (Figure 3).

In 2006, additional Brandeggee's clarkia occurrences were observed outside immediately adjacent to the project limits. A large population was observed south of the aforementioned occurrences, along the same unpaved frontage road (Stephens Trail) and an adjacent shooting range. An estimated 800 to 900 plants were observed flowering along the

roadsides and grassy slopes of the shooting range and frontage road, extending approximately 0.25 mile south from the mapped occurrences outside the project limits. Another 25 plants were observed on the west side of I-80, immediately outside of the project limits.

By 2007, the Brandegee's clarkia populations adjacent to the ESL had expanded, and additional occurrences were observed in the general vicinity of the Long Ravine railroad trestle and nearby disturbed areas associated with Carpenter Road and Bad Rock Road. In 2007, the occurrence on the eastbound side of I-80 near PM 34.90 had extended between Stephens Trail and I-80. Additional occurrences were observed south of I-80 to north of the Long Ravine Railroad trestle in disturbed areas along Carpenter Road. Additional occurrences of Brandegee's clarkia were observed west of westbound I-80. These locations were both south of the Long Ravine Railroad trestle in disturbed areas along Carpenter Road, and north of the trestle in disturbed areas along Bad Rock Road. In 2007, several thousand flowering plants were observed.⁴

The project was redesigned to avoid impacts to the clarkia, and no clarkia was seen within the redesigned project limits during the 2012 survey; therefore, project impacts to this plant are not anticipated.

Butte County missionbells (*Fritillaria eastwoodiae*); CNPS List 3.2

Butte County missionbells is a CNPS List 3.2 species. This species has no California or Federal status, and may not be protected under CEQA because it does not have a CNPS list status of 1 or 2. However, CNPS is considering changing the list status of this species to 1B. If the available data support a List 1B status, then Butte County missionbells would be addressed under CEQA.

Butte County missionbells is known to occur in chaparral, cismontane woodland, and lower montane coniferous forest, where it is sometimes found associated with serpentinite soils. This perennial bulbiferous herb is known from several locations in Butte, El Dorado, Nevada, Placer, Plumas, Shasta, Tehama, and Yuba counties. The elevation range for this species is between 160 and 4,920 feet. Flowering occurs between March and May. Occurrences are threatened by several factors, including logging, development, off-highway vehicles, and overshadowing.

Nine populations of Butte County missionbells are known from the 12-quad background review area, the closest being 5.2 miles east of the project limits. A moderate to high probability exists for this species to occur in the project limits. The range of Butte County missionbells extends both north and south of the project limits, and extensive suitable habitat exists near but outside the project limits. The species has a high probability of existing near the project limits.

⁴ While most plants keyed cleanly to *Clarkia biloba* ssp. *brandegeae* (shallowly notched petals and light pink-lavender color), about 25% of the plants observed to the west of I-80 toward Bad Rock Road had somewhat deeper notches (in cases > 1/5 petal length) and were slightly darker pink. These characters are associated with *C. b.* ssp. *biloba*, a subspecies that is not listed as rare by CNPS. The subspecies of *C. biloba* are known to intergrade (Hickman 1993); the separation between subspecies may not be clean at the Bad Rock Road location. However, since most of the individuals along this road cleanly fit the description of *C. b.* ssp. *brandegeae*, the occurrences along this road were mapped as this species.

Four locations of unidentifiable *Fritillaria* were observed in the middle to northern portion of the project limits in 2006, 2007 and 2012. Some of these plants were located on an existing utility line cut. Others were noted above roadcuts. Several rhizomatous leaves were observed, but these plants did not flower.⁵ In this condition, it was impossible to determine if these plants were Butte County missionbells or a more common species such as scarlet fritillary (*F. recurva*). Because the identity of these individuals is unconfirmed, locations of these basal leaves were mapped. The project was redesigned to avoid impacts to this and other plant and animal species; therefore impacts to this species are not likely.

Additional Plant Taxa of Interest

Three additional plant taxa of interest were observed near the project limits. Two of these species, serpentine bittercress (*Cardamine pachystigma* var. *dissectifolia*) and Humboldt Lily (*Lilium humboldtii* ssp. *humboldtii*) are typically not afforded protection under CEQA because they are included on CNPS lists 3 and 4. The third species, Northern California black walnut (*Juglans hindsii*), is a widespread species that is only afforded CEQA protection when observed in native stands. None of these plants were observed in the project limits; impacts are not anticipated.

Avoidance and Minimization Measures

Direct and indirect impacts to sensitive biological resources, including common vegetation and habitat for sensitive species, throughout the project area will be avoided by designating these features outside of the construction impact area as “environmentally sensitive areas” (ESAs) on project plans and in project specifications. ESA information will be shown on contract plans and discussed in the Special Provisions. ESA provisions may include, but are not limited to, the use of temporary orange fencing to delineate the proposed limit of work in areas adjacent sensitive resources, or to delineate and exclude sensitive resources from potential construction impacts. Contractor encroachment into ESAs will be restricted (including the staging/operation of heavy equipment or casting of excavation materials). ESA provisions shall be implemented as a first order of work, and remain in place until all construction activities are complete. ESA fencing shall prevent access to all upland areas of the functioning existing embankment slopes.

The project limits were also redesigned in 2013 in order to avoid the two Brandegees' *Clarkia* occurrences near the Long Ravine railroad trestle.

2.2.2.4. ANIMAL SPECIES

Regulatory Setting

This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the federal or state Endangered Species Act. All other special-status animal species are discussed here, including CDFW fully protected species and species of special concern, and USFWS or NOAA Fisheries Service candidate species.

⁵ Butte County missionbells was observed flowering at known sites near Magalia, California, at 2,300 feet on March 27 and April 6, 2007, and at new sites near Magalia, California on April 9 and 10, 2007. Visits to *Fritillaria* leaves on April 4, 2007, were at an appropriate time to expect flowers. No fruiting stalks were seen at revisits on May 15, 2007.

The wildlife surveys were conducted as general wildlife reconnaissance surveys. GANDA biologists traversed the project limits on foot to record observed species and identify vegetation communities and habitat types that might support special-status species. All wildlife species observed were recorded. Biologists examined all habitats within the vicinity and completed thorough bird and streamside surveys. The surveys were conducted on June 20 and 29, July 27, 28, and 31, and August 1–4, 2006, and July 2012.

Affected Environment

Special-status wildlife species were defined as:

- Wildlife species that are listed as threatened or endangered under FESA
- Wildlife species that are listed as threatened or endangered under CESA
- Wildlife species identified by the CDFW as species of concern
- Wildlife species that are designated as fully protected by CDFW

Additional species that are not included on California or Federal lists were included at the request of Caltrans. These species include Shirltail Creek stonefly, Gold Rush hanging scorpionfly, spiny rhyacophilan caddisfly, tight coin snail, the bee *Andrena subapasta*, cave harvestman, species of swallows and bats, and suitability for large mammal species. Food plant surveys for the bee *Andrena subapasta* were included in the 2007 floristic surveys. GANDA biologists conducted visual field assessments to evaluate habitat suitability for these additional species.

Background research identified nine special-status wildlife species that are known from the 12-quad research area and from Placer County. In addition to these species, seven other wildlife species of local significance were identified from background research. The effects of the project on bats and large mammals were also considered.

Listed Wildlife Species

Of the 16 wildlife species with the potential to occur in the project limits, two species are listed under FESA and/or CESA. Neither of these Federally or California-listed threatened or endangered wildlife species was observed within the project limits. The habitat requirements and survey results for these two species are described below.

California red-legged frog (*Rana aurora draytonii*): Federally Threatened, California Species of Concern

California red-legged frog is listed as Federally threatened and a California species of concern. These frogs inhabit quiet pools of streams, marshes, and occasionally ponds. Red-legged frogs exhibit little movement into upland habitat from streamside habitats. They are highly aquatic and prefer shorelines with extensive vegetation. Streams that these frogs inhabit must retain surface water in pools year-round for frog survival. Larval development, which takes 11 to 20 weeks, requires permanent or nearly permanent pools. These frogs usually escape to water three feet deep or more at the bottom of pools. California red-legged frogs, especially sub-adults, may disperse overland up to one mile during late fall or the first heavy rainfall through March.

The project limits is within the current range of the California red-legged frog. This was confirmed by Holly Herrod, biologist with USFWS in 2006. A general habitat assessment (nonprotocol) for this species determined that suitable aquatic, riparian, and upland dispersal habitats existed outside the project limits. Four perennial streams identified during

the wetland delineation and a pond contain appropriate characteristics of California red-legged frog habitat exist outside the project limits. Of the four perennial streams, one located on the north side of the project had the most suitable habitat; this stream is quiet with little movement, and has deep pools and vegetated shorelines. The stream contained little to no emergent vegetation, but did possess seasonal wetlands within its corridor. Bullfrogs (*Rana catesbeiana*), which are red-legged frog tadpole predators, were observed outside the project limits and are known to have a negative effect on red-legged frog populations. However, their presence does not negate the possible presence of red-legged frogs within the project limits.

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*); Federally Threatened

The valley elderberry longhorn beetle is a Federally threatened species. However, this species has recovered sufficiently that the USFWS recommended delisting the species in October 2012. Until the delisting proposal is published and reviewed publicly, the valley elderberry longhorn beetle is still afforded protection under FESA.

The valley elderberry longhorn beetle lives exclusively on elderberry shrubs (*Sambucus* spp.) that occur in the Central Valley and foothills of California below 3,000 feet in elevation. Elderberry shrubs provide the only habitat for this small beetle. These shrubs are adapted to moist and dry soils. They can grow well in full sun to partial shade, and can be found along ditches, streams, fencerows, field edges, seepage areas, and other low wet spots.

Elderberry shrubs with stems one inch or more in diameter that occur within the geographic distribution (or range) of the beetle are protected by FESA. The beetle is assumed present in any area where elderberry shrubs are present below 3,000 feet in elevation.

Other Special-Status Wildlife Species

Seven of the 16 wildlife species with potential to occur near or within the project limits do not have FESA or CESA listing status but are candidates for listing under FESA or California species of concern. One California species of concern, the sharp-shinned hawk, was observed outside the project limits. One unidentifiable tadpole was observed that may have been a larval foothill yellow-legged frog, another California species of concern. All of the special-status wildlife species, except the northwestern pond turtle, have potential habitat within the project limits. These species and their habitat requirements are described below.

Pacific fisher (*Martes pennanti distinct population segment pacifica*); Federal Candidate for Listing, California Species of Concern

Pacific fisher is a Federal and California candidate for listing. In March 2013, the Fish and Game Commission (FGC) designated Pacific fisher as a candidate for listing as either an Endangered or Threatened species pursuant to the California Endangered Species Act (CESA). This mammal is an uncommon permanent resident of the Sierra Nevada. This species occurs in intermediate- to large-sized tree stages of coniferous forests and deciduous-riparian habitat with a high percent of canopy cover. Fishers prefer using large cavities and snags, brush piles, and hollow logs for shelter. Fishers appear to be territorial and have an average home range of 5.4 square miles.

Foothill yellow-legged frog (*Rana boylei*); California Species of Concern

Foothill yellow-legged frog is a California species of concern. These frogs are rarely found far from shallow, flowing water, preferably in small to moderate-sized streams with some cobble-sized substrate. This species can exist in a variety of habitats, including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine,

mixed conifer, coastal scrub, mixed chaparral, and wet meadow types. The elevation range for this frog extends from near sea level to 6,370 feet in the Sierra Nevada mountain range. Tadpoles require at least three to four months of inundation to complete their aquatic development.

The project limits is within the current range of the foothill yellow-legged frog. Suitable habitat, such as permanent, slow-moving, shallow water streams with rocky substrate is present near the project limits. All four perennial streams identified during the wetland delineation, as well as a few long-standing seasonal wetlands, contain essential characteristics for the presence of foothill yellow-legged frog. Foothill yellow-legged frogs are infrequent or absent in habitats where predators such as bullfrogs, fish, and garter snakes are present. Although no foothill yellow-legged frogs were definitively identified within the project limits, one tadpole that could not be identified to species was observed in the unnamed tributary to Slaughter's Ravine just outside the project limits.

Northwestern pond turtle (Emys marmorata marmorata); California Species of Concern

Northwestern pond turtle is a California species of concern. This turtle is associated with permanent or nearly permanent water bodies in a variety of habitats such as ponds, marshes, rivers, streams, and irrigation ditches within grasslands, woodlands, and open forests. This turtle is uncommon to common in suitable aquatic habitat throughout Northern California. The elevation range for this species extends from near sea level to 4,690 feet (Jennings and Hayes 1994). Pond turtles require basking sites such as partially submerged logs, rocks, mats of floating vegetation, or open mudbanks. During the spring or early summer, females move overland for up to 325 feet to find suitable habitat for egg laying.

The northwestern pond turtle was not observed in the project limits during reconnaissance-level surveys. No current or historical occurrences have occurred within the project limits. The nearest current record of northwestern pond turtle took place 8.1 miles southwest of the project limits in 1998.

Coast horned lizard (Phrynosoma coronatum frontale); California Species of Concern

Coast horned lizard is a California species of concern. The horned lizard occurs in the Sierra Nevada foothills up to 4,000 feet in elevation, but this species is found chiefly below 2,000 feet. This lizard is common to uncommon in suitable habitat such as conifer and riparian habitats. Horned lizards usually inhabit open country, especially sandy areas, washes, floodplains, and wind-blown deposits. They forage on the ground in open areas, usually between shrubs and often near ant nests. Between periods of inactivity and winter hibernation, the Coast horned lizard often basks on the ground or on elevated objects. This species does not require permanent water within its habitat.

California spotted owl (Strix occidentalis occidentalis); California Species of Concern

California spotted owl is a California species of concern. In the western Sierra Nevada, the California spotted owl occurs in a mixture of habitats including mixed conifer forests, conifers and hardwoods, and hardwood forests; owls may also occur in denser stands of riparian hardwood forest bordering the eastern portions of California's Central Valley. In the western Sierra Nevada, nesting pairs are typically found in mixed conifer forests; 86% of nest trees are known from elevations of 3,000 to 7,000 feet, but have been found as low as 1,000 feet and may occur at even lower elevations. This owl prefers forested areas with large trees, a multilayered canopy, and natural tree cavities for nesting areas; canopy cover in nesting areas averages at least 70% cover. In contrast, canopy cover in foraging areas averages

40% to 50%. The presence of downed debris and logs and other prey habitat can also be important in foraging areas.

In winter, California spotted owl may move downslope to oak-dominated habitats. Spotted owls in the lower elevations of the Sierra Nevada are found using a home range size with a mean of several hundred acres; 900 acres was the mean size, but the size of this range varies widely and may depend on local prey species and availability. Spotted owls are very sensitive to habitat destruction and fragmentation.

No California spotted owls were identified within the project limits. No current or historical sightings have occurred within the project limits. In 2006, District wildlife biologist Matt Triggs, of the Foresthill Ranger District in the Tahoe National Forest, said the nearest current record of California spotted owl took place approximately 13 miles north-northeast of the project limits. Another recorded observation took place in June 2006, approximately 15 miles northeast of the project limits. Triggs also stated that no occurrences of spotted owl are known within one mile of I-80.

The project limits is within the current yearlong range of the spotted owl. Spotted owls are unlikely to nest in the project limits because the area lacks a large, contiguous, multilayered habitat consisting of large conifers. Although no spotted owls were found in the project limits, and suitable nesting habitat was lacking, suitable foraging habitat exists. California spotted owl may forage within or pass through the project limits.

Cooper's hawk (Accipiter cooperii); California Species of Concern

Cooper's hawk is a California species of concern. These hawks inhabit mature, dense coniferous and deciduous habitats, preferably at middle and higher elevations. Suitable habitat is usually interspersed with meadows and riparian areas. Studies have shown variable size home ranges from 45 to 1,312 acres. Cooper's hawks are extremely defensive of their nest area, and will vocally announce their distress and strike their intruders. Nesting and foraging usually occurs near open-water or riparian vegetation.

Cooper's hawks were not observed in the project limits during reconnaissance level surveys. No current or historical occurrences of Cooper's hawk exist within the project limits. The nearest current CNDDDB record of a Cooper's hawk took place 30 miles northeast of the project limits in 1982. The Foresthill Ranger District has reported incidental sightings of Cooper's hawk approximately 12 miles southwest of the project limits near Sugar Pine Hill. The Cooper's hawk is a non-listed species; therefore, it is difficult to obtain reliable occurrence records for this species.

Sharp-shinned hawk (Accipiter striatus); California Species of Concern

Sharp-shinned hawk is a California species of concern. This hawk occurs in all habitats except for alpine, bare desert, and open prairie. These birds prefer to roost in intermediate-to high-canopy cover and use tree stands in close proximity to open areas, which are used for foraging. Sharp-shinned hawks breed in small-tree stands of ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats.

Two sharp-shinned hawks were observed within the project limits near the intersections of Magma Road, Rollins Lake Road, and Norton-Grade Road (T15N R10E Sec18 SE1/4 NW1/8). The two hawks were vocally active and engaging in territorial behavior. The observation occurred in small-tree stands of ponderosa pine habitat.

Additional Wildlife Species of Interest

Seven of the 16 wildlife species known to exist in the project area are considered because they are of local, regional, or state significance. One of the species, cliff swallow, occurs within the project limits. Only one other species, spiny rhyacophilan caddisfly, is likely to occur in the project limits.

Spiny rhyacophilan caddisfly (Rhyacophila spinata); No listing or status

Adults of spiny rhyacophilan caddisfly have been collected from vegetation along “second-order streams” with rapidly flowing, cool water. This caddisfly has been found in Placer, Plumas, and Sierra counties. Larvae of this species are generally free living and predaceous. Prior to pupation, the larvae construct a crude pupal enclosure from small stones, leaving spaces through which water currents can pass.

Spiny rhyacophilan caddisflies were not observed within the project limits during visual reconnaissance level surveys. No current or historical occurrences of this species exist within the project limits. The nearest current record took place 10.6 miles south of the project limits in 1974.

It is unknown if the project limits falls within range of this caddisfly. Little suitable habitat for this species exists within the project limits. The project limits is in Placer County, a known county where this species has been collected, and the only suitable habitat found was the fast-moving perennial stream that leads to Slaughter Ravine. Therefore, spiny rhyacophilan caddisfly may potentially occur outside the project limits.

Cliff swallow (Petrochelidon pyrrhonota); No listing or status

Nesting cliff swallows are protected by the Migratory Bird Treaty Act of 1918. Colonies of cliff swallows (*Petrochelidon pyrrhonota*) were noted under the Long Ravine overcrossing (OC). This species requires vertical structures for nest sites, typically near a source of mud with which to construct nests. Breeding activity typically takes place between April and August; individuals remain common until mid-September.

Additional Wildlife Species and Concerns

In addition to the wildlife species discussed in the previous sections, bat colonies and large mammals were observed within the project limits. Descriptions of these animals and habitat follows.

Bats

Brazilian free-tailed bat (Tadarida brasiliensis) and other bats (Myotis species); Some species of Myotis are listed as California Species of Concern

While Brazilian free-tailed bats (*Tadarida brasiliensis*) have no California or Federal status, some species of *Myotis* are California species of concern. In addition, large maternity roosts bat species are protected under CEQA.

A large colony of Brazilian free-tailed bats resides underneath the Cape Horn Overpass in the expansion crevice. A smaller colony of bats lives underneath the Long Ravine Trestle Bridge in the expansion crevice. Species could not be identified, but the guano present indicates either Brazilian free-tailed bats or a *Myotis* species. Both colonies were present when the site was visited in July, August, and November 2006, and in July 2012.

Both of these bat colonies likely have some use as maternity roosts. These roosts were active in June and July during breeding season. Therefore these roosts are protected under

CEQA. In addition, the bats observed within the project limits at the Long Ravine Trestle are unidentified, and should be treated as a potential species of concern.

Environmental Consequences

Listed Wildlife Species

No California red-legged frogs were observed within the project limits during the reconnaissance level surveys. No current or historical sightings of California red-legged frogs have occurred within the project limits. The nearest current record of California red-legged frog occurred 11.6 miles from the project limits in 2003. Protocol-level surveys to determine presence/absence of this frog were not conducted.

No current or historical occurrences are known within the project limits. The nearest record of valley elderberry longhorn beetle occurred 16.2 miles southwest of the project limits in 1991. The project limits lies within the elevation limits of the assumed range of the valley elderberry longhorn beetle. No elderberry shrubs were observed within the project limits during the 2006, 2007 or 2012 floristic surveys. Therefore, no habitat for the valley elderberry beetle exists within the project limits and it is unlikely the beetle occurs within the project limits.

Other Special-Status Wildlife Species

No Pacific fishers were observed within the project limits during field assessment surveys. No current or historical occurrences of this species exist within the project limits. The nearest record of a fisher observation is located 2.5 miles east-southeast of the project limits in 1973.

The project limits borders on the current range of the Pacific fisher. Suitable habitat for Pacific fisher, conifer forest with dense canopy cover, exists near the project limits. Pacific fishers may utilize portions of the project limits in combination with contiguous adjacent habitat to fully support their needs. However, it is unlikely that fishers exist near or within the project limits, so impacts to the fisher are not anticipated.

Foothill yellow-legged frog could potentially occur within the project limits. No foothill yellow-legged frogs were definitively identified within the project limits during field assessment surveys. No current or historical occurrences exist within the project limits. The nearest record of foothill yellow-legged frog is 3.6 miles south of the project limits in 2000. Another nearby record occurrence is documented in 1999 approximately five miles north of the project limits. Protocol-level surveys to determine presence/absence of this frog were not conducted.

Although the project limits is in the current range of the northwestern pond turtle, no large bodies of standing water are present. Because little suitable habitat is present for the northwestern pond turtle, it is unlikely to occur in the project limits. Therefore, impacts to the pond turtle are not anticipated.

No horned lizards were observed within the project limits during reconnaissance level surveys. No current or historical sightings have occurred within the project limits. However, the nearest current records of the horned lizard were only 0.3 mile and 0.5 mile away from the project limits. These observations were made in 1995 and 1990. Habitat locations varied; one occurrence took place near the railroad switch station in Colfax, and the other

was observed in gray pine forest habitat. Impacts to the coast horned lizard are not anticipated.

No owls were seen during the 2012 surveys; however, owls could still forage in or near the project limits. No impacts to spotted owls are anticipated as any potential foraging owls are already acclimated to the sound of the freeway and any trees or vegetation that may need to be removed for the project will be removed during the non-nesting season.

The project limits is in the current range of the Cooper's hawk. This species could potentially breed, nest, and forage in or adjacent to the project limits. Suitable habitat for this species exists interspersed within the project limits. It is possible that Cooper's hawks are utilizing portions of the project limits with contiguous adjacent habitat that collectively is large enough to support a breeding pair. No impacts to Cooper's hawks are anticipated as any potential hawks are already acclimated to the sound of the freeway and any trees or vegetation that may need to be removed will be removed during the non-nesting season.

No hawks were seen during the 2012 surveys; however, hawks could still forage in or near the project limits. No impacts to sharp-shinned hawks are anticipated as any potential hawks are already acclimated to the sound of the freeway and any trees or vegetation that may need to be removed for the project will be removed during the non-nesting season.

Additional Wildlife Species of Interest

Spiny rhyacophilan caddisfly were not seen during the 2012 surveys. No impacts to this caddisfly are anticipated as the project does not include impacts to their habitat.

Colonies of cliff swallows were noted under the Long Ravine overcrossing (OC). Even though the Long Ravine OC is located within the ESL, no work will occur on these structures. Impacts to cliff swallows are not anticipated.

Additional Wildlife Species and Concerns

Crevices in the overcrossing structures where bats roost will be blocked to prevent roosting. If the crevices are restricted from roosting, it is anticipated that there would be no impacts to bats from construction of the project.

Avoidance and Minimization Measures

California red-legged frogs:

If ground-disturbing activities are planned that are either 1) within one mile of the areas identified as suitable red-legged frog habitat, or 2) that would discharge materials into the wetlands identified as suitable habitat, then protocol-level California red-legged frog surveys would be completed ahead of construction to determine presence or absence of red-legged frogs.

Foothill yellow-legged frog

If ground-disturbing activities are planned that are either 1) within 0.5 mile of the areas identified as suitable yellow-legged frog habitat, or 2) that would discharge materials into the wetlands identified as suitable habitat, then protocol-level foothill yellow-legged frog surveys are recommended and would be done prior to construction.

Cliff swallow

Breeding activity typically takes place between April and August; individuals remain common until mid-September. Disturbance to nests is prohibited during nesting season which extends from February 15 to September 1.

Nesting tree removal

Removal of potential nesting trees will be restricted to the non-nesting season.

Bats

Crevices where bats roost will be blocked to prevent roosting. Blocking will occur when bats are away from their roosts.

2.2.3. CLIMATE CHANGE

Because there have been more requirements set forth in California legislation and executive orders regarding climate change, the issue is addressed in a separate CEQA discussion at the end of this chapter.

2.2.4. GEOLOGY/SOILS/SEISMIC/TOPOGRAPHY

2.2.4.1. REGULATORY SETTING

Topographic and geologic features are protected under CEQA.

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. Caltrans' Office of Earthquake Engineering is responsible for assessing the seismic hazard for Caltrans projects. Structures are designed using Caltrans' Seismic Design Criteria (SDC). The SDC provides the minimum seismic requirements for highway bridges designed in California. A bridge's category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please access the following website: www.dot.ca.gov/hq/esc/earthquake_engineering/sdc/index.php.

2.2.4.2. AFFECTED ENVIRONMENT

Caltrans staff completed a geotechnical report in November 2013.

Physiography/Topography/Surface Water

The proposed project is located in the western foothills of the Sierra Nevada Mountain Range. The project segment of the highway stretches along the northerly side of an ascending, southwest to northeast trending ridge line. The ridgeline is located in the divide of the drainages of the Bear River (Rollins Reservoir) and the North Fork of the American River. I-80 transects a natural surface drainage pattern directed northwesterly (or right to left), which passes through the project by cross culverts. Based on topography data provided by Caltrans Design, the eastbound I-80 roadway elevation climbs from approximately 2,300 feet at PM 35.1 to 3,000 feet at PM 37.8, with an average grade of roughly 5%, and with intermittent grades as high as 6.5%.

Geologic Setting/Rock/Soils

The project lies within the Central Metamorphic Terrane (CMT), a geologic terrane on the north westerly portion of the Sierra Nevada Geomorphic Province. The CMT is located within a northerly trending belt (sometimes referred to as the Foothills Metamorphic Belt), composed of a wide variety of metamorphic and igneous rocks. These rocks were placed on the western edge of North America through convergent plate-tectonism (colliding of earth's crustal plates) that occurred from about 100 million to more than 300 million years ago (Paleozoic and Mesozoic Eras). During the Cenozoic Era, from about 66 million years ago to the present, volcanic and sedimentary rocks were deposited on top of this basement of older rocks. Within the CMT, most of the Cenozoic rocks have been removed by erosion. The older basement rocks have been variously deformed by several episodes of folding and faulting. The overlying Cenozoic deposits show little or no deformation. Based on the review of published geologic mapping of the region, the project is underlain by materials of the Mariposa Formation and the Calaveras Complex, two geologic units situated westerly and easterly, respectively, of their mutual boundary: the northerly-trending Gillis Hill Fault (at approximately PM 35.5). Within Placer County, the Mariposa Formation is composed predominately of black slate of Late Jurassic age, and the exposure within the CMT is reported to be the result of both thrust faulting and normal faulting. Within the project highway segment, the Calaveras Complex materials are noted to be composed of moderately metamorphosed chert, argillite, and slate.

Groundwater

The project site is located in the Department of Water Resources Sacramento River Hydrologic Region. The project site is also located in Zone 3 of the Placer County Water Agency (PCWA) Western Water System. Zone 3 of the PCWA consists of a surface water management system which generally provides water service to the urbanized zones encompassing I-80 from Alta down to Applegate. According to the PCWA 2010 Urban Water Management Plan, the supply of treated and irrigation water in Zone 3 is provided by Pacific Gas & Electric (PG&E) and does not utilize groundwater sources. Within the project area, there is no known single, well-defined groundwater water surface. Instead, groundwater is likely present in multiple, irregular, perched water tables, and in confined zones of higher permeability where both static and flowing groundwater occurs.

In the shallow rock, subsurface conditions at the site, higher permeability and greater water storage capacity will be associated with the formational rock fracture system characteristics, including: fracture aperture (opening size), fracture density (spacing), fracture interconnection, and the presence of soil cover. Groundwater recharge in the project area is primarily from infiltration of precipitation into faults and fractures in bedrock, and into the soil and fill materials that overlie much of the bedrock. Groundwater is recharged over the entire extent of the flow path, except where the land surface is impermeable or where the groundwater table coincides with land surface. Stream flow also recharges ground water when the groundwater-table elevation is lower than the water-surface elevation of the stream. Within the project area, mountain slopes extend significantly far above I-80, hence, the potential recharge area for groundwater seepage zones at the highway is very large. Therefore, there is a great potential for high groundwater flow volumes to occur for significantly long durations subsequent to precipitation events. Subsurface drainage on the existing facility in the project limits include 4,000 lineal feet of longitudinal perforated metal pipe (PMP) underdrain, networks of transverse underdrains (including herringbone configurations for large seeps), and horizontal drains.

Faulting

The project is also located among the various alignments of the Foothills Fault Zone, described by the California Geological Survey (CGS) as a Mesozoic (approximately 225 million years ago) fault system that has been reactivated in Cenozoic time (65 million years ago to present). This system may have originated from tectonic forces exerted by the uplift of the Sierra Nevada Mountain Range, which makes this fault system different from most other fault zones in California in that it is not generated by the tectonic pressures of plates moving past one another (i.e., the San Andreas fault system). This fault zone is generally considered inactive; however, in the vicinity of the project two short segments along the fault system have ruptured. Evidence of an earthquake has been found near Spenceville and is believed to have occurred sometime during the late Quaternary Period (approximately the last 700,000 years before present). More recently (1975), an earthquake measuring 5.7 on the Richter Scale occurred near Oroville along a fault segment known as the Cleveland Hill fault, approximately 33 miles northwest of the project site. The Caltrans Acceleration Response Spectrum (ARS) Online web-based tool (v2.3.06) indicates that the closest "active" fault (defined as a fault that has ruptured in late-Quaternary to present) to the site is the North Central Reach Section (Highway 49 section) of the Foothills Fault System. The web tool indicates the closest surface trace of this fault is southwest, at distance of approximately 7.7 miles, and that this fault is a "normal" fault type capable of generating a Maximum Movement Magnitude (Mmax) of 6.2. The CGS Geologic Data Map No. 6 indicates a second late-Quaternary fault of the Foothills Fault System to be within 10 miles of the site; however, the current Caltrans ARS Online tool does not recognize this fault as active. This second fault is located eight miles northeasterly of the project site and is called the Giant Gap Fault of the Melones Fault System of Clark. The site is not within an Alquist-Priolo Earthquake Fault Zone. As noted above, no late-Quaternary faults are known to be within or extend across the project boundaries. The northerly-trending Gillis Hill Fault extends across the highway at approximately PM 35.5; the Gillis Hill Fault is reported to be Pre-Quaternary, lacking recognizable activity in the last 1.6 million years.

Rock Falls/Slope Instability

Maintenance personnel have reported that, within the right slopes adjacent to the eastbound lanes of the project limits, slope failures and the occurrence of rock fall into the travel way has not been significant, and therefore not providing a hazard condition to the traveling public. In 2007, a rock slide occurred on the left slope (adjacent to the westbound lanes) between PM 34.8 and 34.9. The rock slide failure was attributed to adverse dipping of the foliated rock (Mariposa Formation slate), exposure to rainfall, and the susceptibility of the rock to high decomposition rates. In 2013, the rockslide potential of the area was eased due to construction of an anchored cable mesh system.

Blasting

Caltrans Geotechnical Services (GS) prepared a District Preliminary Geotechnical Report (DPGR) for the project in 2013. During the field investigation for the DPGR, rock exposures on existing cut-slopes were reviewed to evaluate the presence of materials in proposed excavations that could necessitate more intensive excavating techniques (such as hydraulic splitters, pneumatic hammers, blasting, etc.). These techniques require the implementation of the Standard Special Provisions (SSPs) for "Rock Excavation" (SSP19-4.X1) in the project contract. Based on the field review, hard slate rock materials were noted at the base of existing cut slopes, adjacent to the eastbound lane, throughout the project limits. Although the slate was observed to be foliated with a dipping fracture orientation, the exposed

fractures were predominately noted to be tight. The penetration of the ripper tooth into fractures is often the key to the success of ripping with large tractors for excavating. Therefore, light blasting to open fractures may improve ripping production. The estimates are considered preliminary and GS will be proposing geophysical studies in the Geotechnical Design Report (GDR) phase to more accurately quantify the anticipated extent of rock excavation materials and the excavation characteristics of site materials.

2.2.4.3. ENVIRONMENTAL CONSEQUENCES

Groundwater

A failure to preserve and restore the functionality of existing subsurface drainage facilities, along with not providing new strategic subsurface drainage installations, may produce adverse effects on the roadway structural section and increase the likelihood of sheet flow occurrences (from the entry of groundwater to the surface through pavement joints). Therefore, the project includes restoration of existing drainage and installation of new drainage. No impacts to groundwater are anticipated.

Seismic Hazards

Seismic activity may affect the project vicinity; however, based on the absence of active faults at the site, earthquake induced hazards on the project highway segment would be facilitated by seismic shaking alone and not fault rupture. “Strong” ground motion (defined as greater than 0.3g per 2013 DPGR guidelines) is not expected to occur. Secondary seismic hazards such as liquefaction, seismically-induced (dry) settlement, and landslides are not anticipated to occur. Seismically-induced rock fall is probable, but is anticipated to be limited.

Rock fall/slope instability

In some cases, the existing rocky cut slopes on the right side of the highway (adjacent to the eastbound lane) will be increased in height and/or steepened. The existing slopes were noted to contain relatively intact metamorphosed rock with foliations that strike and dip in a stable manner to the existing and proposed cut slope orientations. However, the occurrence of rock fall will be likely, although not frequent. Localized unstable slope faces exposed during construction may necessitate avoidance/minimization measures (see below).

Blasting

Blasting is typically the most cost effective and efficient method to complete rock excavation. Residential structures may be near the proposed cut-slope locations. Furthermore, other structures or underground/overhead utilities (gas, telecommunications, etc.) could be located in the proximity of the proposed cut-slopes. Nearby residents and local utilities will be contacted regarding blasting activities (approximate dates and times).

Blasting operations will likely require holding of traffic on I-80 for relatively short periods (around 10 minutes), and in the case of misfire events the I-80 transportation corridor could be closed for an extended period (60 minutes or more).

Caltrans (or its contractor) will comply with federal, state, and local blasting regulations. Caltrans (or its contractor) will also submit a blasting safety plan, as specified in Standard Special Provisions (SSP) 19-4.XX (www.dot.ca.gov/hq/esc/oe/2010_SSPs_output.php)

2.2.4.4. AVOIDANCE AND MINIMIZATION MEASURES

Groundwater

Preserving and restoring the functionality of existing subsurface drainage facilities is proposed. Preserving functionality is anticipated to include the installation of an underdrain, longitudinally, along the right shoulder at similar extents to existing underdrains. A contingency allocation will be sought for strategic placement (at the engineer's discretion) of additional subsurface drainage facilities (including underdrains, horizontal drains, edge drains, etc.) during construction.

Seismic Hazards

Seismically induced rock fall measures for minimizing traveling public hazard exposure will be similar to static rock fall stability measures (see below).

Rock fall/slope instability

A rock fall assessment will be performed as part of the Geotechnical Design Report (GDR). Measures to reduce the potential for rock fall hazards (rock fall entering the travel way) are expected to include an increase in shoulder width which will provide a larger, effective catchment width (outside the travel way) for rock fall. Additional reduction of rock fall potential, along with slope instability, will be achieved by reducing localized slope instability identified during construction. Anticipated measures include rock slope protection (RSP) placement, slope flattening, rock bolting, and/or the installation of anchored cable mesh systems.

Blasting

Blasting techniques require the implementation of the Standard Special Provisions (SSPs) for "Rock Excavation" (SSP19-4.XX) and "Rock Excavation (Controlled Blasting)" (SSP 19-4.XX) in the project contract. A copy of these SSPs are available at www.dot.ca.gov/hq/esc/oe/2010_SSPs_output.php.

2.2.5. HAZARDOUS WASTE/MATERIALS

2.2.5.1. REGULATORY SETTING

Statutes govern the generation, treatment, storage and disposal of hazardous materials, substances, and waste, and also the investigation and mitigation of waste releases, air and water quality, human health and land use.

California regulates hazardous materials, waste, and substances under the authority of the CA Health and Safety Code California Health and Safety Code and is also authorized by the federal government to implement RCRA in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts

disposal of wastes and requires clean-up of wastes that are below hazardous waste concentrations but could impact ground and surface water quality. California regulations that address waste management and prevention and clean up contamination include Title 22 Division 4.5 Environmental Health Standards for the Management of Hazardous Waste, Title 23 Waters, and Title 27 Environmental Protection.

Worker and public health and safety are key issues when addressing hazardous materials that may affect human health and the environment. Proper management and disposal of hazardous material is vital if it is encountered, disturbed during, or generated during project construction.

2.2.5.2. AFFECTED ENVIRONMENT

The Caltrans North Region Office of Environmental Engineering - South completed an updated Initial Site Assessment (ISA) in February 2012. The ISA consisted of a review of the project plans and aerial mapping within the project limits, discussions with the Caltrans Design Engineer, and a review of previous site investigation work that has occurred in the vicinity of this project.

Lead-contaminated soil may exist within and near State right of way due to the historical use of leaded gasoline, leaded airline fuels, waste incineration, and other lead producing activities. The areas of primary concern in relation to highway facilities are soils along routes with historically high vehicle emissions due to large traffic volumes, congestion, or stop and go situations. Since soil disturbance and relinquishment to the contractor will occur, an Aerially Deposited Lead (ADL) site investigation is required. This site investigation will determine if hazardous soils exist and what actions, if any, will need to occur during construction. The ADL investigation occurs after the final environmental document is approved.

The project involves structure replacement (Cape Horn UC). Asbestos-containing materials (ACM) are presumed to be present at the bridge expansion joints and bearing pads (for structures built prior to 1980).

Since construction of the proposed project cannot avoid disturbing soils, a Site Investigation (SI) is required. A SI will take two to five months once a contractor is selected to conduct the work. The contractor would be required to prepare work plans, health and safety plans, conduct site investigations, and prepare site investigation reports for Caltrans review and approval.

During construction, a number of materials will be used including gasoline, diesel fuel, oil, and lubricants for operation of construction equipment. These materials are typically used, handled, and stored by contractors on all roadway construction projects. No acutely hazardous materials would be used or stored on-site during construction. Construction of the proposed project could potentially result in small fuel spills from construction or vehicles.

2.2.5.3. ENVIRONMENTAL CONSEQUENCES

ADL may be encountered during construction of the project. ACM is assumed present on the bridges.

2.2.5.4. AVOIDANCE AND MINIMIZATION MEASURES

SSP 7-1.02K(6)(j)(iii), Earth Material Containing Lead (addressing soil disturbance when lead concentrations are non-hazardous) and SSP 14-11.03 (addressing existing hazardous waste concentrations) will be included in the project specifications. The implementation of a Lead Compliance Plan for ADL is required. The contractor shall submit a project specific "Lead Compliance Plan", prepared by a Certified Industrial Hygienist (CIH) as required by Cal/OSHA. Hazardous chemicals are known to exist in the wood posts associated with the metal beam guardrail. If wood posts are removed, they will be disposed of in accordance with SSP 14-010 (Treated Wood Waste).

A Hazardous Materials Disclosure Document (HMDD) will be required as an attachment to the Certificate of Sufficiency (COS) before any right of way can be acquired. The HMDD will be prepared after final right of way mapping is available.

The ACM on the bridge will require removal and proper disposal by a licensed and certified asbestos abatement contractor in conjunction with the planned bridge replacement. The contractor must implement an Asbestos Compliance Plan (ACP) to prevent or minimize exposure to asbestos. Attention is directed to Title 8, California Code of Regulations, Construction Safety Orders, Section 5192(b) and Section 1529, "Asbestos", Occupational Safety and Health Guidance Manual published by the National Institute of Occupational Safety and Health (NIOSH) and the US Environmental Protection Agency (USEPA) for elements of the ACP.

A Non-Standard Special Provision (NSSP) will be included in the project specifications to address *National Emissions Standards for Hazardous Air Pollutants* (Air Quality - NESHAP) notification.

The NSSP for removal of ACMs, bridges, will also be included in the project specifications. Copies of NSSPs can be obtained by contacting the Caltrans' Hazardous Waste Office at HQ_HazWaste@dot.ca.gov.

Further analysis is required after the final environmental document to identify any other specific avoidance and minimization measures.

2.2.6. WATER QUALITY AND STORM WATER RUNOFF

2.2.6.1. REGULATORY SETTING

State Requirements: Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This Act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste" as defined and this definition is broader than the CWA definition of "pollutant". Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA, and regulating discharges to ensure compliance with the water quality standards. Details regarding water quality standards in a project area are contained in the applicable RWQCB Basin Plan. In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions, and then set criteria necessary to protect these uses. Consequently, the water quality standards developed for particular water segments are based on the designated use and vary depending on such use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants, which are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWQCBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollution Discharge Elimination System (NPDES) Program

Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the Clean Water Act requires the issuance of NPDES permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems (MS4s). The U.S. EPA defines an MS4 as “any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that are designed or used for collecting or conveying storm water.” The SWRCB has identified Caltrans as an owner/operator of an MS4 pursuant to federal regulations. Caltrans' MS4 permit covers all Caltrans rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

Caltrans' MS4 Permit, NPDES No. CAS000003, contains three basic requirements:

1. Caltrans must comply with the requirements of the Construction General Permit (see below);
2. Caltrans must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and
3. Caltrans storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the Maximum Extent Practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within Caltrans for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices Caltrans uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of Best Management Practices (BMPs). The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

Construction General Permit

Construction General Permit (Order No. 2009-0009-DWQ), adopted on September 2, 2009, became effective on July 1, 2010. The permit regulates storm water discharges from construction sites which result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop storm water pollution prevention plans; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The 2009 Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP). In accordance with Caltrans' Standard Specifications, a Water Pollution Control Plan (WPCP) is necessary for projects with DSA less than one acre.

Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the United States must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before USACE issues a 404 permit.

In some cases the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as Waste Discharge Requirements (WDRs) under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

2.2.6.2. AFFECTED ENVIRONMENT

Caltrans water quality staff completed a water quality assessment report in July 2012.

Hydrology

The project is situated in the American River and Bear River Hydrologic Units. The Hydrologic Sub-Area (HSA) that may be affected are Gold Run (514.53) and Rollins Reservoir (516.34). The HSA are the receiving water bodies.

The major water bodies in the identified HSAs are the North Fork segment of the American River (source to Folsom Lake) and the Yuba River (source to Englebright Reservoir). The beneficial uses of water within the identified segment of the American River and Yuba River are contained in the Basin Plan of Central Valley Regional Water Quality Control Board (CVRWQCB). These include Cold Fresh Water Habitat (COLD), Municipal and Domestic Supply (MUN), Spawning, Reproduction and/or early Development (SPWN), Water Contact Recreation (REC-1 and REC-2) and Warm Freshwater Habitat (WARM).

Pursuant to Section 303(d) of the Clean Water Act, the Bear River and Rollins Reservoir are listed as threatened water bodies from mercury pollution. Past resource extraction activities have been identified as the source of the pollutant. Mercury is not expected to be generated from the activities associated with the project. The Total Maximum Daily Load (TMDL) for the pollutant is scheduled to be developed by 2021.

The hydrologic information for the project is summarized in Table 4 below:

Table 4. Hydrologic Information

State Route	PM	RWQCB	Hydrologic Sub Area	Hydrologic Sub-Area Name	Approx Elevation (Feet)	Average Annual Precipitation (Inches)
80	35.0	Central Valley	514.53	Gold Run	4,800	51.6
80	38.30	Central Valley	516.34	Rollin Reservoir	4,800	61.1

The project locations fall within the City of Colfax and Placer County MS4 areas and under the jurisdiction of the Central Valley Regional Water Quality Control Board.

Disturbed Soil Area (DSA):

It is expected that the DSA from this project will exceed one (1) acre. Although the project's proximity of the location to the water bodies suggests a low risk for pollution, according to the Statewide GIS Web map for Construction General Permit (CGP), the risk level of the receiving watershed is high.

2.2.6.3. ENVIRONMENTAL CONSEQUENCES

Significant water quality impacts are not expected due to the distance of the receiving water bodies from the project location. The use of construction site BMPs will avoid/minimize impacts. The available information at this phase of the project is insufficient to determine if permanent and treatment BMPs are required. Work will be performed during more than one dry summer season. The number of working days has not been determined. Temporary

construction site BMPs will be implemented under a Contractor prepared SWPPP to control potential sources of water pollution and to avoid/minimize storm water impacts.

2.2.6.4. AVOIDANCE AND MINIMIZATION MEASURES

In order to prevent the receiving water bodies from pollution arising from construction activities and/or operations related to this project, the following actions are recommended:

- The project shall comply with Caltrans Statewide NPDES Permit CAS No. 000003 (Order No. 99-06-DWQ) and future superseding Orders issued by the State Water Resources Control Board. Adoption of a new Statewide Permit is scheduled for sometime in the near future, and may entail additional requirements upon adoption.
- The project shall comply with the requirements of the NPDES General Permit CAS No. 000002 (Order No. 2009-0009-DWQ) for General Construction Activities since the total disturbed soil area (DSA) exceed one (1) acre.
- Since the DSA will exceed more than 1.0 acre, a Caltrans approved SWPPP is required. The SWPPP specifies the level of temporary pollution control measures for the project. Standard Special Provision (SSP) 07-345 shall be included in the PS&E package to address construction's temporary water pollution control measures. These measures must address soil stabilization, sediment control, tracking control and wind erosion control practices. In addition, at a minimum, the project plans must include non-storm water controls, waste management and material pollution controls.
 - a. Existing drainage facilities shall be identified and protected by the application of appropriate construction site BMPs.
 - b. Caltrans' Storm Water Management Plan (SWMP), Project Planning and Design Guide (PPDG) Section 4, and Evaluation Documentation Form (EDF) provide detailed guidance in determining if a specific project requires the consideration of permanent treatment BMPs. Line item BMPs may be incorporated into the PS&E package.
- The project will be regulated by the CVRWQCB through the Statewide NPDES General Permit. Caltrans shall implement the program specified in the Storm Water Management Plan.
 - a. The Caltrans NPDES Office will participate in early project design consultation with the Regional Board. Caltrans shall solicit Regional Board staff review during the Project Initiation Document (PID), Project Approval and Environmental Document (PA&ED) and Plans, Specifications and Estimates (PS&E) Milestones. Coordination with Regional Board staff shall be conducted through the District NPDES Coordinator.
 - b. Any storm water/urban runoff collection, treatment, and/or infiltration disposal facilities shall be designed, installed, and maintained for the discharge of storm water runoff from all impervious surfaces generated by the 20-year, one-hour design storm within the appropriate watersheds. Runoff in excess of the design storm generated within the project site shall only be discharged to a storm drain or stabilized drainage system capable of conveying flow from 100-year, 24-hour storm. If site conditions do not allow for adequate onsite disposal, all site runoff must be treated to meet applicable Effluent Limits and/or Receiving Water Limitations specified in the Basin

Plan. The CVRWQCB Executive Officer may approve alternative mitigation measures.

- c. In accordance with the NPDES General Permit, Caltrans shall comply with all Waste Discharge Prohibitions specified in the Basin Plan.

2.2.7. NOISE

2.2.7.1. REGULATORY SETTING

CEQA provides the broad basis for analyzing and abating highway traffic noise effects. The intent of this laws is to promote the general welfare and to foster a healthy environment.

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless such measures are not feasible.

Figure 5 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise-levels discussed in this section with common activities.

Figure 5. Noise Levels of Common Activities

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet Fly-over at 300m (1000 ft)	110	Rock Band
Gas Lawn Mower at 1 m (3 ft)	100	
Diesel Truck at 15 m (50 ft), at 80 km (50 mph)	90	Food Blender at 1 m (3 ft)
Noisy Urban Area, Daytime	80	Garbage Disposal at 1 m (3 ft)
Gas Lawn Mower, 30 m (100 ft)	70	Vacuum Cleaner at 3 m (10 ft)
Commercial Area		Normal Speech at 1 m (3 ft)
Heavy Traffic at 90 m (300 ft)	60	
Quiet Urban Daytime	50	Large Business Office
		Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime		Library
Quiet Rural Nighttime	30	Bedroom at Night,
	20	Concert Hall (Background)
		Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

According to Caltrans' *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, May 2011*, a noise impact occurs when the future noise level with the project results in a substantial increase in noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC. If it is determined that the project will have noise impacts, then potential abatement measures must be considered.

Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated in the project.

Caltrans' *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5 dBA reduction in the future noise level must be achieved for an abatement measure to be considered feasible. The Caltrans acoustical design goal is that noise abatement must be predicted to provide at least 7 dB of noise reduction at one or more benefited receptors. Other considerations include topography, access requirements, other noise sources, and safety considerations. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include: residents acceptance and the cost per benefited residence.

2.2.7.2. AFFECTED ENVIRONMENT

Caltrans prepared a Noise Study Report in July 2013.

Existing Land Uses

Developed and undeveloped land uses in the project vicinity were identified through land use maps, aerial photography, and site inspections. Within each land use category, sensitive receivers were identified. Existing land uses in the project area include single-family residences. As required by the Protocol, although all developed land uses are evaluated in this analysis, noise abatement is only considered for areas of frequent human use that would benefit from a lowered noise level. Accordingly, this impact analysis focuses on locations with defined outdoor activity areas, such as residential backyards and common use areas at multifamily residences.

Noise Measurement Results

The existing noise environment in the project area is based on short-term and long-term 24-hour traffic noise level measurements.

The primary source of noise in the project area is traffic on I-80 and local roadways in the project area. Short-term (20-minute) noise measurements were conducted to document existing noise levels at fourteen representative receptor locations and predict the noise levels at all sensitive receptors in the project area. The short-term monitoring locations are shown on Figure 6. Table 5 shows the results of the short-term noise level measurements and describes the physical locations of the noise monitoring locations. A total of fourteen separate model runs were conducted using the traffic counts collected during the ambient noise monitoring.

2.2.7.3. ENVIRONMENTAL CONSEQUENCES

Because the project will increase the number of through traffic lanes, it qualifies as a Type 1 project under Caltrans guidelines. A Type 1 Project is defined as a proposed Federal or Federal-aid highway projects for the construction of a highway on a new location, or the physical alteration of an existing highway that significantly changes either horizontal or vertical alignment, or increases the number of through-traffic lanes.

Caltrans is the CEQA lead agency on this project. Accordingly, the CEQA significance of noise impacts is based on Caltrans standards. CEQA requires a strict baseline versus build

analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless such measures are not feasible. Normally, Caltrans does not consider traffic noise impacts to be significant under CEQA unless the project is predicted to result in a substantial increase in noise (i.e., 12 dB). Because no substantial increase in noise is predicted, implementation of the proposed project is not predicted to result in significant traffic noise impacts under CEQA. Long-term effects are considered less than significant.

Table 7 summarizes the traffic noise modeling results for existing conditions and design year conditions with and without the proposed project. The predicted 2035 noise levels at the representative receptor locations within the project area were determined using 2035 p.m. peak-hour traffic volumes (2011). Predicted design-year traffic noise levels of the project are compared to existing conditions and to design-year no-build conditions. The comparison to the no-build conditions indicates the direct effect of the project.

Traffic noise impacts occur when either of the following occurs: (1) if the traffic noise level at a sensitive receptor location is predicted to “approach or exceed” the NAC, or (2) if the predicted traffic noise level is 12 dBA or more over the corresponding modeled existing peak noise level at the sensitive receptor locations analyzed. When traffic noise impacts occur, noise abatement must be considered.

Modeling results in Table 7 indicates that for one receptor (R5) the predicted traffic noise levels for the design-year with-project conditions approach the NAC of 67 dBA-Leq(h) for Activity Category B land use. The remaining thirteen receptors did not approach or exceed the NAC of 67 dBA-Leq(h) for Activity Category B land use within the project area. Therefore, traffic noise impacts are not predicted to occur at Activity Category B land uses within the project area, and noise abatement will not be considered for this project.

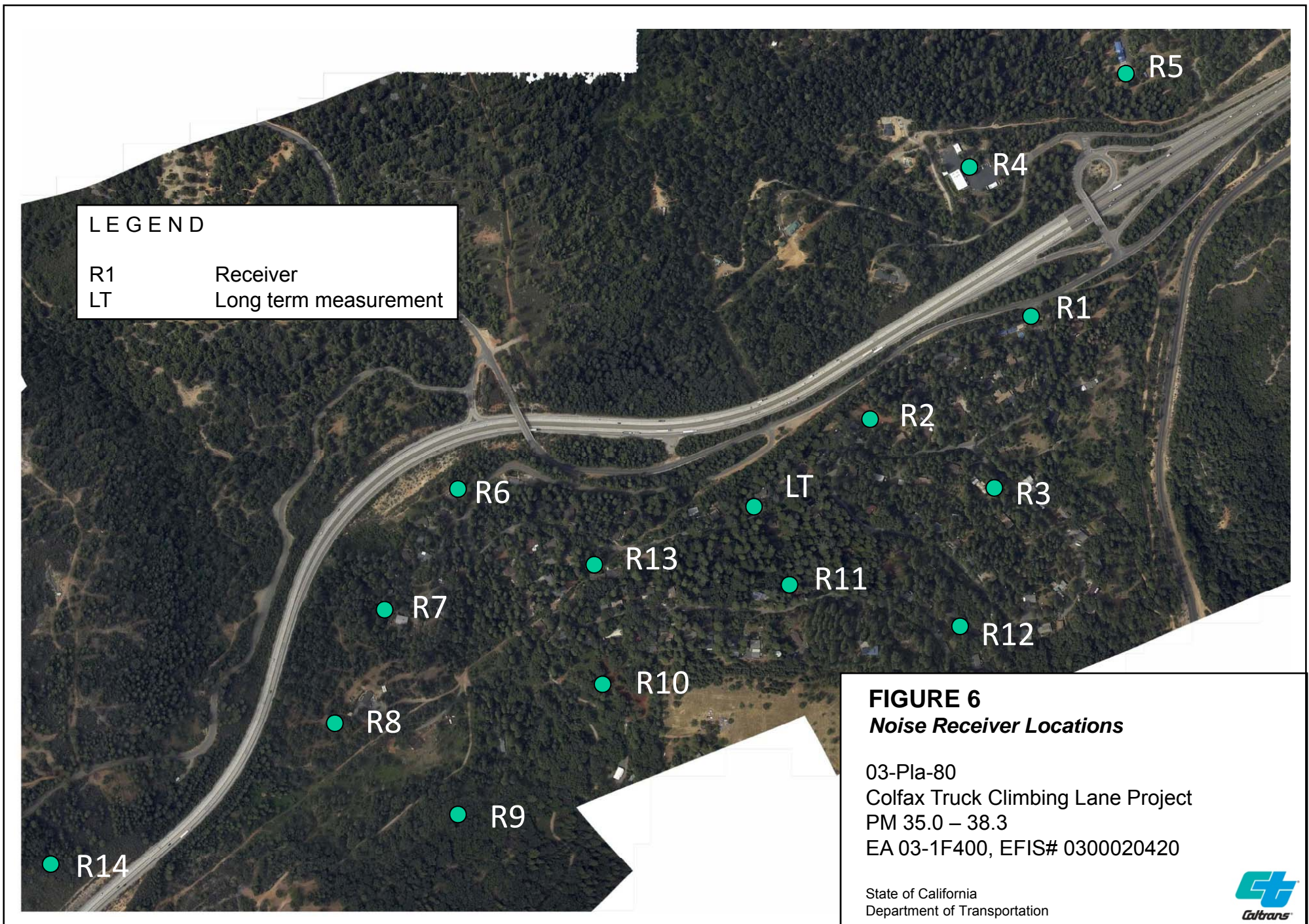


Table 5. Summary of Short-Term Measurements

Receiver ID	Location	Land Use	Date	Start Time	Duration (Minutes)	Measured Leq (dBA)
R1	Backyard of 110 Alpine Dr	Residential	4/19/12	11:40 am	20	60.6
R2	Backyard of 260 Alpine Rd.	Residential	4/19/12	12:15 pm	20	61.9
R3	In front of 205 Alpine Rd.	Residential	4/19/12	1:10 pm	20	51.2
R4	Nevada Irrigation District	Water Irrigation Plant	4/19/12	1:45 pm	20	60.5
R5	In front of Secret Rd.	Residential	4/19/12	2:20 pm	20	61.8
R6	In front of 101 Sylvan Rd.	Residential	4/20/12	11:30 am	20	57.0
R7	In front of 152 Alpine Circle	Residential	4/20/12	12:20 pm	20	51.1
R8	In front of 196 Alpine Circle	Residential	4/20/12	1:15 pm	20	55.7
R9	In front of 27530 Stream Ravin Rd.	Residential	4/20/12	1:55 pm	20	48.6
R10	Manzanita / Alpine Dr	Residential	4/20/12	2:40 pm	20	51.4
R11	In front of 325 Alpine Dr.	Residential	4/24/12	11:15 am	20	50.7
R12	In front of 395 Alpine Dr.	Residential	4/24/12	11:55am	20	50.2
R13	In front of 177 Alpine Circle	Residential	4/24/12	1:15 pm	20	50.9
R14	In front of 27775 Norton Grade Rd.	Residential	4/24/12	2:05 pm	20	55.7

Table 6. Comparison of Measured to Predicted Sound Levels

Monitor No.	Measured Noise Level (dBA Leq)	Modeled Noise Level (dBA Leq)	Measured minus Calculated (dBA Leq)	K-Factor* (dBA)
R1	60.6	62.2	-1.6	0
R2	61.9	63.9	-2.0	0
R3	51.2	57.1	-5.9	-2.9
R4	60.5	59.0	1.5	0
R5	61.8	63.6	-1.8	0
R6	57.0	59.5	-2.5	0
R7	51.1	56.3	-5.2	-2.2
R8	55.7	57.9	-2.2	0
R9	48.6	50.2	-1.6	0
R10	51.4	54.0	-2.6	0
R11	50.7	52.8	-2.1	0
R12	50.2	55.0	-4.8	-1.8
R13	50.9	53.1	-2.2	0
R14	57.2	60.8	-3.6	-1.0

* Calibration factors (K) or model adjustments are used to bring the model closer to measured conditions.

Table 7. Predicted Future Traffic Noise Levels dBA (Leq)

Receptor No.	Existing Noise Level	Future No Build (2035) Noise Level	No Build minus Existing	Future Build (2035) Noise Level	Build minus Existing	Traffic Noise Impact*
R1	62.2	63.6	1.1	64.6	2.4	None
R2	63.9	64.4	0.5	65.6	1.7	None
R3	57.1	58.0	0.9	59.2	1.2	None
R4	59.0	60.4	1.4	61.4	2.4	None
R5	63.6	64.6	1.0	66.2	1.8	A/E
R6	59.5	60.1	1.4	61.4	1.9	None
R7	54.1	55.7	1.6	56.6	2.5	None
R8	57.9	58.9	1.0	60.1	2.2	None
R9	50.2	51.3	1.1	52.1	1.9	None
R10	54.0	55.0	1.0	55.9	1.9	None
R11	52.8	53.7	0.9	54.8	2.0	None

R12	55.0	55.9	0.9	57.4	2.4	None
R13	53.1	54.4	1.3	55.4	2.3	None
R14	60.8	61.2	0.4	61.7	0.9	None

Note: A/E= Future noise conditions approach or exceed the Noise Abatement Criteria.

2.2.7.4. CONSTRUCTION NOISE

During construction of the project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Construction noise is regulated by Caltrans Standard Specifications Section 14.082, "Noise Control", which states that noise levels from the contractor's operation between the hours of 9:00 p.m. and 6:00 a.m. shall not exceed 86 dBA Lmax (maximum sound level) at a distance of 50 feet.

Table 8 summarizes noise levels produced by construction equipment that is commonly used on roadway construction projects. Construction equipment is expected to generate noise levels ranging from 70 to 90 dB at a distance of 50 feet, and noise produced by construction equipment would be reduced over distance at a rate of about 6 dB per doubling of distance.

Table 8. Construction Equipment Noise

Equipment	Maximum Noise Level (dBA at 50 feet)
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82
Source: Federal Transit Administration 1995.	

Construction noise would be short-term, intermittent, and overshadowed by local traffic noise.

2.2.7.5. AVOIDANCE AND MINIMIZATION MEASURES

Implementing the following measures would minimize the temporary noise impacts from construction:

All equipment will have sound-control devices that are no less effective than those provided on the original equipment. No equipment will have an unmuffled exhaust.

As directed by Caltrans, the contractor will implement appropriate additional noise mitigation measures, including changing the location of stationary construction equipment, turning off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise sources.

Construction will be conducted in accordance with Caltrans Standard Specifications Section 14.082 and applicable local noise standards.

2.2.8. TRAFFIC AND TRANSPORTATION

Reno and the Lake Tahoe basin provide ample recreational opportunities for many people. The primary routes to these areas are I-80 and US 50. Data from Caltrans' Traffic Accident Surveillance and Analysis System (TASAS) for July and August of

2012 shows a distinct peak for eastbound traffic on Friday and Saturday versus average weekdays. In many cases the eastbound volumes on weekend peak hours can be twice those of weekday peak hours. Westbound I-80 sees higher peaks on Sundays, as returning trips from recreational areas tend to occur on the same day. These recreational trip peaks also occur around holidays (July 4th mid-week peak), and are magnified on weekend holidays (Friday before the Labor Day weekend).

2.2.8.1. AFFECTED ENVIRONMENT

Caltrans completed a traffic study for the project in December 2012.

Interstate 80 is a four lane divided freeway in the study area. There are no on-off ramps in the eastbound direction in the study area; however, there are westbound on- and off-ramps at Rollins Lake Road just west of the Magra Road Overcrossing. The freeway rises from approximately 2,275 ft. elevation to nearly 3,000 ft. over 2.5 miles at a steady 5% grade.

Traffic and Truck Volumes

The traffic volumes below were taken from the 2011 All Traffic Volumes on California State Highway System provided by Caltrans' Traffic and Vehicle Data Systems Unit. "Back" and "Ahead" refer to traffic data before and after the Magra Road interchange.

Table 9. Traffic Volumes – Peak Hour and Annual Average Daily Traffic (AADT)

Location	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
03-PLA-80 PM 37.728, Magra Road	4,050	30,000	26,500	4,450	30,500	26,500

The truck volumes for I-80 (below) were taken from the 2011 Average Annual Daily Truck Traffic on the California State Highway System.

Table 10. Truck Volumes – Truck AADT and % of AADT

Location	Total AADT	Truck AADT	Percent Truck	Truck AADT by axle			
				2	3	4	5+
03-PLA-80 PM 33.131 Colfax Jct. 174	26,500	5,022	18.95	1,393	189	72	3,369

Accident History

Accidents within the study area were queried from the TASAS Table B for a five-year period (see Table 3). In the five years from April 1, 2006, to March 31, 2011, there were 78 accidents eastbound on this grade. Thirty-eight of the 78 eastbound collisions involved trucks. Of those 38, 22 were sideswipe collisions and three were rear end collisions.

2.2.8.2. ENVIRONMENTAL CONSEQUENCES

Operational Impacts

The eastbound traffic volume was projected out 20 years and analyzed using methodologies from Caltrans' Highway Capacity Manual 2010. The results are shown in the table below.

Table 11. Projected Performance Without Climbing Lane

Year	Eastbound Volume (vehicles/hr)	Flow Rate (pc/hr/ln*)	Free Flow Speed (mph)	Density (pc/mi/ln*)	LOS
2012	1698	1466	64.9	22.6	C
2017	1911	1650	64.1	25.7	C
2022	2123	1833	62.3	29.4	D
2027	2335	2016	59.6	33.8	D
2032	2547	2200	55.9	39.3	E

* passenger cars per hour per lane

The LOS E threshold suggested by the AASHTO “Green Book” will be violated by 2032. However, there are many hours in the weekends that already exceeds these future volumes today. Additionally, it is not uncommon for the project area to be subject to chain controls in adverse winter weather conditions. Table 12 analyzes the performance with the additional truck climbing lane.

Table 12. Performance With Climbing Lane

Year	Eastbound Volume (vehicles/hr)	Flow Rate (pc/hr/ln*)	Free Flow Speed (mph)	Density (pc/mi/ln*)	LOS
2012	1698	978	65.0	15.0	B
2017	1911	1100	65.0	16.9	B
2022	2123	1222	65.0	18.8	C
2027	2335	1344	65.0	20.7	C
2032	2547	1466	64.9	22.6	C

* passenger cars per hour per lane

The analysis shows that the addition of a truck climbing lane would improve the flow rate, free flow speed, density, and LOS in the 20-year time frame.

Construction Impacts

Construction will involve lane closures limited to nighttime hours. A minimum of one lane will be open during construction activities. Detours are not anticipated.

Impacts from project construction will be reduced by utilizing the avoidance and minimization measures below.

2.2.8.3. AVOIDANCE AND MINIMIZATION MEASURES

Caltrans will prepare a Transportation Management Plan (TMP) for the project. This usually is incorporated in the project specifications. The TMP would the following elements:

- On I-80, work will be limited to nighttime hours. No lane closures will be allowed during daytime and peak commute hours on weekdays.
- A minimum of one paved traffic lane, not less than 11 feet wide, shall be open in each direction of travel during construction.
- Lane closures on will be performed in accordance with Caltrans' Standard Plan Sheet T10, "Traffic Control System for Lane Closure on Freeways and Expressways."
- The maximum length of any lane closure shall be limited to one mile.
- Portable changeable message signs (PCMS) will be required in the direction of traffic during construction for each lane or shoulder closure.
- No lane closures, shoulder closures, or other traffic restrictions will be allowed on Special Days (as defined in the project specifications), designated legal holidays and the day preceding designated legal holidays, and when construction operations are not in progress.
- Work in the project area may require the assistance of the Construction Zone Enhanced Enforcement Program (COZEPP), but a full time COZEPP presence is not anticipated.
- Coordination with future proposed projects within, or nearby the project limits (if any) will be required to avoid conflicts. Care should be taken in the timing of the schedules of each project to ensure that they are not constructed at the same time, or at a minimum to ensure that all projects are coordinated during construction to minimize, any interference among the various projects.
- Lane closure charts will be developed prior to Plans and Estimates.

2.2.9. UTILITIES/EMERGENCY SERVICES

2.2.9.1. AFFECTED ENVIRONMENT

Utilities and Public Services

The following utilities/emergency services would not be affected by the project:

- Water supply and distribution
- Wastewater collection and treatment
- Solid waste disposal
- Natural gas
- Telecommunications

Electrical services and emergency services may be affected by the project.

Electrical Services

The Pacific Gas and Electric Company (PG&E) provides electrical services within Placer County.

Emergency Services

Emergency services are provided by the Colfax Volunteer Fire Department and American Medical Response. Fire protection services are also provided by the California Department

of Forestry and Fire Protection (Cal Fire) by contract with the Placer County Office of Emergency Services.

The Sheriff's Department services outlying areas of the county. Interstate 80 is serviced by the California Highway Patrol.

2.2.9.2. ENVIRONMENTAL CONSEQUENCES

Utilities

Two PG&E power poles located on the south side of I-80 near the Cape Horn Undercrossing may be relocated. Caltrans Design may change the design to avoid these power poles. If not, Caltrans will work with PG&E to relocate these poles.

Emergency Services

During roadway construction, emergency vehicles may need to stop temporarily or slow down in order to ensure that they can safely pass through the project area.

2.2.9.3. AVOIDANCE AND MINIMIZATION MEASURES

All emergency public services, such as medical services, law enforcement agencies, fire departments, and local ambulance services will be notified prior to construction.

Caltrans will implement a Transportation Management Plan (TMP) for this project (refer to Section 2.2.8.3).

2.3. Construction Impacts

Construction impacts are discussed under various resource topics in this document. However, discussion of construction impacts associated with air quality, potential access roads, and staging areas are discussed below.

2.3.1. Air Quality

On July 25, 2012, the Sacramento Area Council of Governments (SACOG) Regional Planning Partnership determined that the project was exempt from regional and project level air quality conformity analysis under the Safety Improvements category. Adverse air quality impacts are not anticipated.

The proposed project may result in the generation of short-term construction-related air emissions, including fugitive dust and exhaust emissions from construction equipment. Fugitive dust, sometimes referred to as windblown dust or PM₁₀, would be the primary short-term construction impact, generated during excavation, grading and hauling activities. However, both fugitive dust and construction equipment exhaust emissions would be temporary and transitory in nature.

Naturally occurring asbestos (NOA) is known to exist in serpentine, a greenish greasy-looking rock, found within the ultramafic rock. Based on the California Geologic Survey and National Resource Conservation Service soils map, some ultramafic rocks are found in Placer County and Nevada County.

2.3.1.1. AVOIDANCE AND MINIMIZATION MEASURES

Caltrans Standard Specifications, a required part of all construction contracts, includes Section 14-9.02, Air Pollution Control, Section 14-9.03 Dust Control, and Section 7-1.02C, Emission Reduction, which should effectively reduce and control emission impacts during construction. The provisions of Section 7-1.02, Laws, and Section 7-1.02A require the contractor to comply with all pertinent rules, regulations, ordinances, and statutes of the local air district.

If NOA is found during construction, rules and regulations of the local air quality management district must be adhered to when handling this material.

2.3.2. Access Roads

Below is a list of potential access roads that may be used by the contractor during construction:

- Carpenter Road
- Cape Horn Road
- Norton-Grade Road
- Cape Horn Road East
- Bad Rock Road
- Wooley Road
- Rollins Lake Road
- Magra Road

Data regarding the number, type, and frequency of construction vehicles using these potential access routes is not known at this time, and will not be known until the construction contract is awarded after the final environmental document is complete.

2.3.2.1. AVOIDANCE AND MINIMIZATION MEASURES

The contractor will be required to follow the specifications included in the 2010 Standard Specifications and 2010 Standard Special Provisions related to traffic control.

A Transportation Management Plan (TMP) will be implemented for this project. A TMP is a program of activities utilized for alleviating or minimizing work-related traffic delays by applying traditional traffic handling practices and innovative strategies including public awareness campaigns, motorist information, demand management, incident management, system management, construction methods and staging, and alternate route planning. TMP strategies also strive to reduce overall duration of work activities where appropriate. Typical components of a TMP can include measures such as the implementation of staging, traffic handling, and detour plans; restricting construction work to certain days and/or hours to minimize impacts to traffic and pedestrians; coordination with other construction projects to avoid conflicts; and the use of portable changeable message signs to inform the public of construction activities.

2.3.3. Staging Areas

Caltrans has identified optional staging areas within the project's environmental study limit (Figure 3). The impacts of the optional staging areas are discussed in each section of this environmental document.

If the contractor chooses not to use these optional staging areas, and the contractor has identified different staging areas, then the contractor is responsible for all environmental compliance and permitting for those areas.

2.3.4. Cape Horn Overcrossing

The project includes the replacement of the Cape Horn Overcrossing bridge. The replacement of the bridge will occur in the following stages, to reduce the impact on traffic during construction:

- Stage 1: Construct new eastbound truck lane
- Stage 2: Remove and replace existing eastbound lane, move eastbound traffic to new truck lane, westbound continues to use existing westbound lane
- Stage 3: Remove and replace existing westbound lane, move westbound traffic to new eastbound lane, eastbound traffic continues to use new truck lane

Staging construction in this manner will minimize impacts to traffic.

2.4. Cumulative Impacts

2.4.1. Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this proposed project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor, but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive types of agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

California Environmental Quality Act (CEQA) Guidelines, Section 15130, describes when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under CEQA can be found in Section 15355 of the CEQA Guidelines

2.4.2. Affected Environment

The project-specific resources to consider in this cumulative effect analysis include impacts to aesthetic resources and natural communities. The vegetation within the environmental study limits of the project consist of Pacific ponderosa pine, Douglas fir, incense cedar and white fir, with an understory of white-leaved manzanita and deerbrush. Also, in some areas

the soils support black oak or canyon live oak in the over-story. Additional project-specific resources to consider in this cumulative effect analysis include impacts to wetlands.

The study area for the resources identified above is limited to the general project site vicinity from south of the railroad trestle to north of the Alpine Overcrossing. The resource study area is a fairly densely vegetative area that is sparsely populated. One rural subdivision is located on the west side of I-80 near the railroad trestle. Another small rural subdivision is located on the east side of the highway between the Magra and Alpine overcrossings. The land within the resource area is designated in the Placer County General Plan as Rural Residential (1-10 acres minimum), Rural Ranchette (2.5 - 20 acres minimum), and Rural Estate (1.1 - 4.5 acres minimum).

The project-specific direct and indirect impacts include aesthetic and natural communities' impacts as a result of removal of vegetation and wetland impacts. Because the proposed project will reduce visual impacts and wetland impacts through avoidance and minimization measures (see Sections 2.1.3.4 and 2.3.2.4), this project would not contribute to cumulative impacts.

According to Placer County, there are currently no proposed or planned development projects in the resource study area that would contribute to a cumulative impact (www.placer.ca.gov/departments/communitydevelopment/envcoordsvcs/currentproject).

2.4.3. Environmental Consequences

In context with the lack of other current and reasonably foreseeable development in the vicinity, cumulative aesthetic and biological impacts within the study area are not anticipated. The proposed project will provide sufficient avoidance, minimization, and mitigation measures to mitigate impacts to aesthetic and biological resources to less than significant levels. Cumulative impacts are not expected to result from construction of the project. Therefore, the proposed project's construction and operation would not make a considerable contribution to any significant cumulative aesthetic or biological impact.

2.4.4. Avoidance, Minimization, and/or Mitigation Measures

No additional avoidance, minimization, and/or mitigation measures are required to reduce cumulative impacts.

2.5. Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatologic changes to greenhouse gas (GHG) emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF₆), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles make up the largest source of GHG-emitting sources. The dominant GHG emitted is CO₂, mostly from fossil fuel combustion. There are typically two terms used when discussing the impacts of climate change: "Greenhouse Gas Mitigation" and "Adaptation." "Greenhouse Gas Mitigation" is a term for reducing GHG emissions to reduce or "mitigate" the impacts of climate change. "Adaptation" refers to the effort of planning for and adapting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels)⁶.

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing travel activity, 3) transitioning to lower GHG-emitting fuels, and 4) improving vehicle technologies/efficiency. To be most effective, all four strategies should be pursued cooperatively.⁷

2.5.1. Regulatory Setting

State

With the passage of several pieces of legislation including State Senate and Assembly bills and Executive Orders, California launched an innovative and proactive approach to dealing with GHG emissions and climate change.

Assembly Bill 1493 (AB 1493), Pavley, Vehicular Emissions: Greenhouse Gases, 2002: This bill requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.

Executive Order (EO) S-3-05 (June 1, 2005): The goal of this EO is to reduce California's GHG emissions to 1) year 2000 levels by 2010, 2) year 1990 levels by 2020, and 3) 80 percent below the year 1990 levels by 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32.

Assembly Bill 32 (AB 32), Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 sets the same overall GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases."

Executive Order S-20-06 (October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency (Cal/EPA) and state agencies with regard to climate change.

Executive Order S-01-07 (January 18, 2007): This order set forth the low carbon fuel standard for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

⁶ http://climatechange.transportation.org/ghg_mitigation/

⁷ http://www.fhwa.dot.gov/environment/climate_change/mitigation/

Senate Bill 97 (SB 97) Chapter 185, 2007, Greenhouse Gas Emissions: This bill required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the California Environmental Quality Act (CEQA) Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

Senate Bill 375 (SB 375), Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires the California Air Resources Board (CARB) to set regional emissions reduction targets from passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan for the achievement of the emissions target for their region.

Senate Bill 391 (SB 391) Chapter 585, 2009 California Transportation Plan: This bill requires the State's long-range transportation plan to meet California's climate change goals under AB 32.

Federal

Although climate change and GHG reduction are a concern at the federal level, currently no regulations or legislation have been enacted specifically addressing GHG emissions reductions and climate change at the project level. Neither the United States Environmental Protection Agency (U.S. EPA) nor the Federal Highway Administration (FHWA) has issued explicit guidance or methods to conduct project-level GHG analysis.⁸ FHWA supports the approach that climate change considerations should be integrated throughout the transportation decision-making process—from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

The four strategies outlined by FHWA to lessen climate change impacts correlate with efforts that the state is undertaking to deal with transportation and climate change; these strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in travel activity.

Climate change and its associated effects are also being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the "National Clean Car Program" and EO 13514 - Federal Leadership in Environmental, Energy and Economic Performance.

Executive Order 13514 (October 5, 2009): This order is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also directs federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

U.S. EPA's authority to regulate GHG emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that GHGs meet the

⁸ To date, no national standards have been established regarding mobile source GHGs, nor has U.S. EPA established any ambient standards, criteria or thresholds for GHGs resulting from mobile sources.

definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, U.S. EPA finalized an endangerment finding in December 2009. Based on scientific evidence it found that six greenhouse gases constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing Act and EPA's assessment of the scientific evidence that form the basis for EPA's regulatory actions. U.S. EPA in conjunction with NHTSA issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010.⁹

The U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations.

The final combined standards that made up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards implemented by this program are expected to reduce GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

On August 28, 2012, U.S. EPA and NHTSA issued a joint Final Rulemaking to extend the National Program for fuel economy standards to model year 2017 through 2025 passenger vehicles. Over the lifetime of the model year 2017-2025 standards this program is projected to save approximately four billion barrels of oil and two billion metric tons of GHG emissions.

The complementary U.S. EPA and NHTSA standards that make up the Heavy-Duty National Program apply to combination tractors (semi trucks), heavy-duty pickup trucks and vans, and vocational vehicles (including buses and refuse or utility trucks). Together, these standards will cut greenhouse gas emissions and domestic oil use significantly. This program responds to President Barack Obama's 2010 request to jointly establish greenhouse gas emissions and fuel efficiency standards for the medium- and heavy-duty highway vehicle sector. The agencies estimate that the combined standards will reduce CO₂ emissions by about 270 million metric tons and save about 530 million barrels of oil over the life of model year 2014 to 2018 heavy duty vehicles.

2.5.2. Project Analysis

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of GHG.¹⁰ In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively

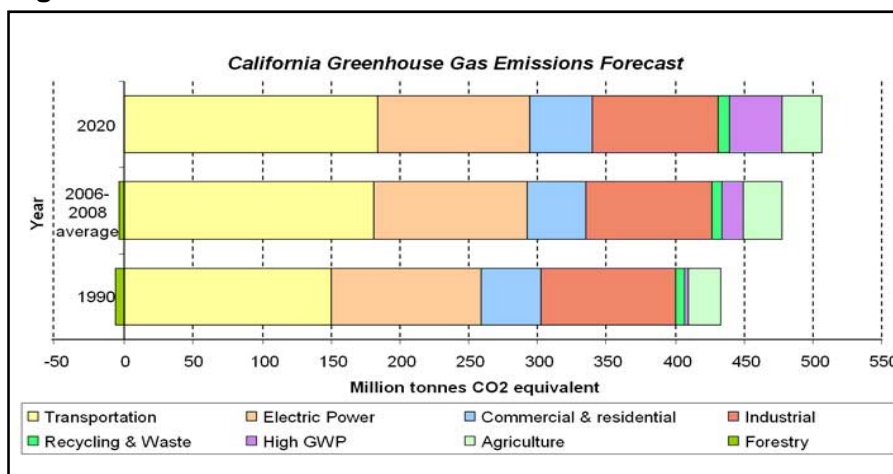
⁹ <http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq>

¹⁰ This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the U.S. Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

considerable” (CEQA Guidelines Sections 15064(h)(1) and 15130). To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

The AB 32 Scoping Plan mandated by AB 32 includes the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, the ARB released the GHG inventory for California (forecast last updated: October 28, 2010). The forecast is an estimate of the emissions expected to occur in 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.

Figure 7. California Greenhouse Gas Forecast



Source: <http://www.arb.ca.gov/cc/inventory/data/forecast.htm>

Caltrans and its parent agency, the Transportation Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California’s GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, Caltrans has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.¹¹

2.5.3. Construction Emissions

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by onsite construction equipment, and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

¹¹ Caltrans Climate Action Program is located at the following web address: http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf

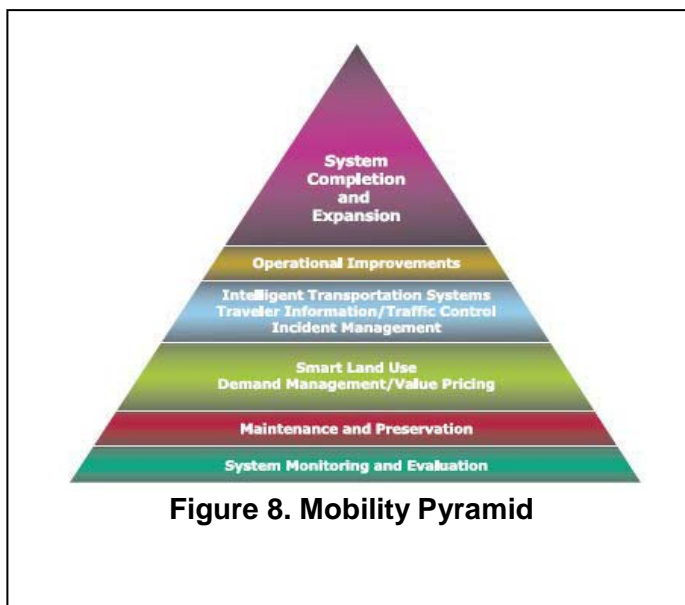
In addition, with innovations such as longer pavement life, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

2.5.4. CEQA Conclusion

While construction will result in a slight increase in GHG emissions during construction, it is anticipated that the project will not result in any increase in operational GHG emissions. While it is Caltrans determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct impact and its contribution on the cumulative scale to climate change, Caltrans is firmly committed to implementing measures to help reduce GHG emissions. These measures are outlined in the following section.

2.5.5. Greenhouse Gas Reduction Strategies

Caltrans continues to be actively involved on the Governor's Climate Action Team as ARB works to implement the Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies Caltrans is using to help meet the targets in AB 32 come from the California Strategic Growth Plan, which is updated each year. Former Governor Arnold Schwarzenegger's Strategic Growth Plan calls for a \$222 billion infrastructure improvement program to fortify the state's transportation system, education, housing, and waterways, including \$100.7 billion in transportation funding during the next decade. The Strategic Growth Plan targets a significant decrease in traffic congestion below today's level and a corresponding reduction in GHG emissions. The Strategic Growth Plan proposes to do this while accommodating growth in population and the economy. A suite of investment options has been created that combined together are expected to reduce congestion. The Strategic Growth Plan relies on a complete systems approach to attain CO₂ reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as depicted on Figure 8, The Mobility Pyramid.



Caltrans is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high density housing along transit corridors. Caltrans is working closely with local jurisdictions on planning activities; however, Caltrans does not have local land use planning authority. Caltrans is also supporting efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; Caltrans is doing this by supporting

on-going research efforts at universities, by supporting legislative efforts to increase fuel economy, and by its participation on the Climate Action Team. It is important to note, however, that the control of the fuel economy standards is held by U.S. EPA and ARB. Lastly, the use of alternative fuels is also being considered; Caltrans is participating in funding for alternative fuel research at the UC Davis.

Caltrans is also working towards enhancing the State's transportation planning process to respond to future challenges. Similar to requirements for regional transportation plans under Senate Bill (SB) 375, SB 391 requires the State's long-range transportation plan to meet California's climate change goals under Assembly Bill (AB) 32.

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce greenhouse gas (GHG) emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California's future, statewide, integrated, multimodal transportation system. The purpose of the CTP is to provide a common policy framework that will guide transportation investments and decisions by all levels of government, the private sector, and other transportation stakeholders. Through this policy framework, the CTP 2040 will identify the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the State's transportation needs.

Table 13 summarizes Caltrans and statewide efforts that Caltrans is implementing in order to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012): is intended to establish a Caltrans' policy that will ensure coordinated efforts to incorporate climate change into Caltrans' decisions and activities.

Caltrans Activities to Address Climate Change (April 2013)¹² provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce greenhouse gas emissions resulting from agency operations.

To the extent that it is applicable or feasible for the project and through coordination with the project development team, the following measures will also be included in the project to reduce the GHG emissions and potential climate change impacts from the project:

- Plants and erosion control reduces surface warming, and through photosynthesis, decreases CO₂. The project proposes wetland mitigation planting on site, drainage channels, and restoring all disturbed areas with native seeds and plants. These plantings and erosion control could help offset any potential CO₂ emissions increase.
- According to Caltrans' Standard Specifications, the contractor must comply with all local Air Pollution Control District's rules, ordinances, and regulations in regards to air quality restrictions. Air Quality commitments will be incorporated as such.
- Both fugitive dust and construction equipment exhaust emissions will be temporary and transitory in nature. Caltrans Standard Specifications, a required part of all construction

¹² http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml

contracts, should effectively reduce and control emission impacts during construction under the provisions of Section 7-1.02C "Emission Reduction" and Section 14-9.03 "Dust Control". Provision 14-9.02 "Air Pollution Control" requires the contractor to comply with all pertinent rules, regulations, ordinances, and statutes of the local air district.

- The project would incorporate the use of energy efficient lighting such as the LED temporary traffic signals the project is using. LED bulbs consume 10% of the electricity of regular light bulbs, which will also help reduce the projects CO2 emissions.

Table 13. Climate Change/CO ₂ Reduction Strategies							
Strategy	Program	Partnership		Method/Process	Estimated CO ₂ Savings Million Metric Tons (MMT)		
		Lead	Agency		2010	2020	
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated	
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated	
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8	
Operational Improvements & Intelligent Transportation System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	0.07	2.17	
Mainstream Energy & GHG into Plans and Projects	Division of Transportation Planning; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated	
Educational & Information Program	Division of Transportation Planning	Interdepartmental, CalEPA, ARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated	
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.045 0.0225	
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	0.34	
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix	1.2	4.2	
				25% fly ash cement mix > 50% fly ash/slag mix	0.36	3.6	
Goods Movement	Division of Transportation Planning	Cal EPA, ARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated	
Total					2.72	18.18	

2.5.6. Adaptation Strategies

“Adaptation strategies” refer to how Caltrans and others can plan for the effects of climate change on the state’s transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28, 2011¹³, outlining the federal government's progress in expanding and strengthening the Nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provides an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as freshwater, and providing accessible climate information and tools to help decision-makers manage climate risks .

Climate change adaptation must also involve the natural environment as well. Efforts are underway on a statewide-level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08, which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea level rise.

In addition to addressing projected sea level rise, the California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, state and federal public and private entities to develop The California Climate Adaptation Strategy (Dec 2009)¹⁴, which summarizes the best-known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency.

The strategy outline is in direct response to EO S-13-08 that specifically asked the Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

The National Academy of Science was directed to prepare a Sea Level Rise Assessment Report¹⁵ to recommend how California should plan for future sea level rise. The report was released in June 2012 and included:

¹³ <http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation>

¹⁴ <http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF>

¹⁵ *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future* (2012) is available at http://www.nap.edu/catalog.php?record_id=13389.

- Relative sea level rise projections for California, Oregon and Washington taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates.
- The range of uncertainty in selected sea level rise projections.
- A synthesis of existing information on projected sea level rise impacts to state infrastructure (such as roads, public facilities and beaches), natural areas, and coastal and marine ecosystems.
- A discussion of future research needs regarding sea level rise.

In 2010, interim guidance was released by The Coastal Ocean Climate Action Team (CO-CAT) as well as Caltrans as a method to initiate action and discussion of potential risks to the states infrastructure due to projected sea level rise. Subsequently, CO-CAT updated the Sea Level Rise guidance to include information presented in the National Academies Study.

All state agencies that are planning to construct projects in areas vulnerable to future sea level rise are directed to consider a range of sea level rise scenarios for the years 2050 and 2100 to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. Sea level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data

All projects that have filed a Notice of Preparation as of the date of EO S-13-08, and/or are programmed for construction funding from 2008 through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines. The proposed project is outside the coastal zone and direct impacts to transportation facilities due to projected sea level rise are not expected.

Executive Order S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance and operational improvements of the system, and economy of the state. Caltrans continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Currently, Caltrans is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change effects, Caltrans has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, Caltrans will be able review its current design standards to determine what changes, if any, may be needed to protect the transportation system from sea level rise.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is an active participant in the efforts being conducted in response to EO S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.